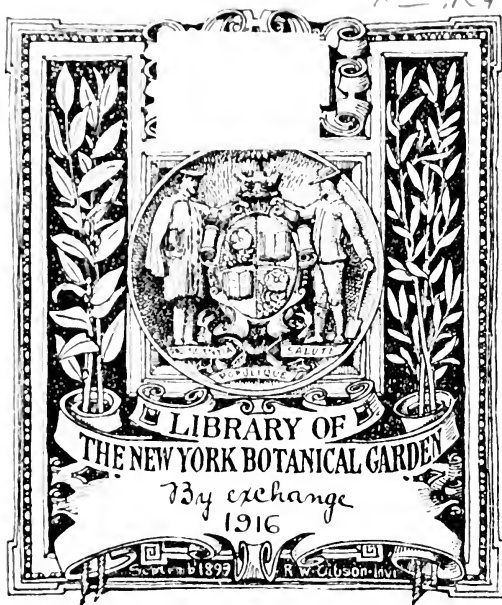


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IRISH GARDENING

A MONTHLY JOURNAL DEVOTED TO THE
ADVANCEMENT OF HORTICULTURE AND
ARBORICULTURE IN IRELAND

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ARBORICULTURE IN IRELAND

EDITOR—J. W. BESANT.

The Rose Garden in January.

THE present month is generally too inclement for any extensive work in the garden, but still a few hours now and then can be very usefully employed. Any of the Climbing varieties that have not been trimmed during the autumn should be seen to without delay, all shoots that can be spared should be removed, and the remaining branches shortened back to the ripe wood.

The most frequent error in connection with those Climbing Roses is that they are allowed to grow too profusely. Year after year the plant is throwing out many long stems, which, unless ruthlessly kept within bounds, tend to create a tangle both unlovely and unproductive of flowers. Thin and wiry growth is of no use and should be cut clean away. The shoots retained should be arranged so that there is sufficient space between them, but in avoiding a tangle care should be taken that the enthusiast with the knife does not skeletonise the plant. Any fine day will offer an opportunity for shifting any dwarf plants that may have outgrown their position. One is often apt to misjudge the space required in a few years for a fairly vigorous Rose, and it is more advisable to transfer it to more roomy quarters than to sacrifice it by hard pruning. In the case of Roses in a border where those of moderate growth are liable to suffer from their overgrowing neighbours, naturally the former will yield place.

After a heavy gale some of the larger bushes may be found to have loosened about the roots; this is almost a certainty if rain has preceded. The soil should be closed in and made firm, otherwise the first hard frost may have serious consequences. Roses of the Hugh Dickson, Gruss an Teplitz and Caroline Testout type that quickly make big growth should be well staked and the longer shoots shortened.

When one considers the facility of growing Roses in pots even without heat it is surprising that it is not more widely practised. With the help of an unheated glasshouse or a frame first rate blooms can be had during April and May in most localities. It is not too late to pot up now, and any of the moderately vigorous Roses will suit. Cuttings that have been rooted since last year are admirable for this purpose. There will not be the difficulty, as there often is, in Roses grown on other stocks, and the depth in the pot can be more easily regulated. A pot 7 or 8 inches wide will be found the most convenient size. A compost of old fibrous loam well mixed with some well-rotted manure and leaf-mould, and if obtainable some $\frac{1}{4}$ inch bones should be used. When potted they can be plunged in the soil near a south wall until the sap begins to run, when they may be placed in the cold frame or greenhouse where they are to flower. The first pruning should be close. Cut back to the third eye or dormant bud—three stems are quite sufficient to retain.

Without forcing, very fine blooms can be obtained in this way. Of course, if Roses are to be forced in heated houses they should be potted up for a year previously, as roots and flowers cannot be grown artificially at the same time successfully.

In view of planting towards the end of the month the site could be well dug now and some old manure well mixed with the bottom spit of soil. This will be well weathered before the dry days arrive that will enable the work of planting to be done with more convenience.

Newly planted Roses should be regularly examined and guarded against frost. The soil should be kept heaped up about the roots and no cavity left where water is likely to lodge for any time. A mulch of farmyard manure can be applied to the older Roses, and it will be all the

better for being stripped, the unsightly effect can be hidden by some soil thrown over it. If any of the roots have any rot, all the tainted portion should be cut away and burnt. None of the old heads now rotten should be allowed to remain, as they offer a harbourage for pests and fungoid diseases. An occasional spraying during this and next month will be very beneficial. If the day is warmer than usual, it will be more efficacious if the mixture has the chill taken off by hot water. In this case the work should be done about mid day. An excellent wash can be made from Calvert's carbolic soft soap. Boil $\frac{1}{2}$ lb. in about three quarts of water, when cold dilute at rate of one to six, and it can be used freely.

J. A. F. G.

Pernettya mucronata

TIT. *Pernettya* is deserving of extended cultivation, for its richly-coloured fruits are amongst the most attractive of all hardy shrubs. An ericaceous evergreen, the *Pernettyas*, in common with the *Heath* family, dislike lime in the soil. A peaty mixture or sandy loam in which leaf-mould is freely incorporated, is suitable. In habit the plants are very spreading, and may be from 2 to 4 feet, occasionally more, in height. Spreading by means of suckers, a bed of *Pernettyas* in a few years becomes a dense

mass of growths. Propagation is by seeds, cuttings, or division of the clumps. Seeds provide a ready means of increase, and is recommended in raising new varieties, but when desiring to perpetuate a particularly good fruiting bush, cuttings or division must be practised.

A case in point occurred here recently, a batch of plants raised from a selected white-fruited bush (spray illustrated) produced fruits of all colours, very few resembling the parent.

The white heath-like flowers are produced freely during May, followed in autumn by richly coloured fruits, varying from a glistening waxy white to almost black, and including pink, rose, mauve, lilac, purple, and crimson.

In addition to varying in colour there is considerable difference in the size of the fruits, these being from $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter. The *Pernettyas* are

one of the few berry-bearing shrubs to which birds do not seem partial. It is interesting to record that one of the first growers to select and improve the fruits of the *Pernettya* was an Irish nurseryman—Mr. T. Davis—in the early eighties of the last century.

Pernettya mucronata was first introduced in 1828, and is a South American shrub native of the Straits of Magellan.



PERNETTYA MUCRONATA
with white berries.

The Deciduous Cypress—*Taxodium distichum*.

THIS interesting and handsome tree is a native of the Southern States of America, and is allied to the Mammoth Trees of California, though not approaching them in size. Throughout the summer months it is conspicuous by reason of its beautiful light green foliage, which in autumn dies away a rich reddish-brown scarcely less beautiful than the summer condition. The bark of the trunk, too, is attractive, being dark red.

The deciduous Cypress is a moisture-lover, and not a few fine specimens are to be met with in cultivation near ponds and lakes. A healthy example grows near the Lily pond in the Botanic Gardens at Glasnevin, and on this specimen the "knee-like" growths—characteristic in its native swamps—are beginning to form on the roots. In Florida, where the tree occurs in large



Photo. by

TAXODIUM DISTICHUM
in Florida.

[Mr. Coey

numbers, growing often in water, the trunk is often buttressed at the base, as shown in the illustration taken by Mr. Coey of the Donard Nurseries while travelling in Florida a year or two ago.

Although coming from a warmer country than ours, the deciduous Cypress is quite hardy, and will flourish even away from water in any ordinary soil which is not too dry. Good planting specimens can be obtained from nurserymen at from eighteen pence to half-a-crown, and even cheaper for smaller plants.

The wood is described as "light, soft, straight-grained, and easily worked, and lasts well in contact with soil, and is used in a variety of ways in railway work." &c.

ARBOR.

Filmy Ferns and their Cultivation.

THE necessary conditions of constant atmospheric moisture are so rare in the British Isles that only three species of Filmy Ferns are natives—viz., *Trichomanes radicans* (Killarney Fern), *Hymenophyllum tumbridgense*, and *H. unilaterale*. Although the Killarney Fern has been liberal in producing several forms or varieties, being found naturally in constantly damp places, in rocks and caves, in secluded

mountain glens or ravines, culture obviously is confined to Wardian cases, bell glasses, or even old frames, sunk well down below the ground level, if to be grown outside; but given proper compost and the little necessary attention, no Ferns are more capable of taking care of themselves with the maximum amount of satisfaction to the grower.

The soil should be a rough compost of peat and

sand, using plenty of lumpy sandstone or other porous stone, always maintaining a humid atmosphere, with occasional waterings; give ample light, but no direct sunshine, and good drainage is most essential.

Most Filmy Ferns would be difficult to procure, but some of the commoner kinds are admirably adapted for house decoration for amateurs, grown in Wardian cases, &c.

Unlike most dwellinghouse plants, they could have a thorough watering and be left for a week, or even two, whilst people were away on holidays, the Killarney Fern especially so. We have a plant here which was grown in a Dublin dwellinghouse for over sixty years; but there are numerous other species which would do equally well under the same conditions, of which I will

cutnnet (ly. a. k. f. o. l. l. Hymenophyllum asplenoides, H. decursum, H. dilatatum, H. filabellatum, F. (Hymenophyllum) T. superba (most handsome), F. (Hymenophyllum) Andrewsii, F. dilatatum, F. reniforme, F. setigerum.

Many species and varieties of Fibry Ferns are grown here in a rough structure (without heat) with concrete walls. Small pockets made with pieces of sandstone (fixed to the wall, make excellent places for starting pieces of the creeping ones, these eventually getting out on the wall itself, and having then a most natural effect.

I may mention in the same house good pieces of the New Zealand Tree Fern, Dicksonia species, do equally well, the whole requiring little attention, except being sprayed over with a hose each morning. If rainwater is procurable, it would be certainly advisable to use it in preference. Although some growers do not agree with overhead damping, I have found it to be absolutely harmless to the plants when used in moderation.

I have seen registered in this house five degrees of frost, and on any such days we withhold them after. S. G. W.

Smaller Campanulas for the Rock Garden.

PART III.

By MURRAY HORNBUROOK.

CAMPANULA petraea is a rare, difficult, and somewhat dowdy plant, making a small tuft of hairy leaves and producing pale yellow flowers. It survives in moraine, but seems of biennial tendency; it comes easily from seed.

C. pulla is another "indispensable." Supposed for years to be a lime-hater, and catalogued as such, it is now recognised as a lime-lover. With me it is indifferent to soil and situation, coming up everywhere in sun or shade, and never becoming a weed. Possibly no other Campanula can compare with *C. pulla* at its best. Imagine a close carpet of bright shiny green leaves, and then, later, the whole mass absolutely covered with drooping bells of deepest and purest purple, none just clear of the foliage on thread-like stems. One patch, now over two yards' square, is the annual joy of my garden, and beyond a yearly trodding of sand and leaf-mould it has received no further attention for several years. *C. pulla* has a pale form, var. *lilacina*, which I do not find very attractive, it has also a very rare white form, which I have lost. There was also for a short time a particularly strong and good coloured form known as the "Italian Variety." I got it once from Heath of Cheltenham, and lost it by over-coddling. I never see it catalogued now, and fear it must have disappeared. I have in a former article sung the praises of the true *C. Raineri*, a dwarf creeping thing bearing enormous upturned bells on 3-inch stems. In moraine it is almost seedless. It seems quite

hardy and perennial in stony soil, and increases easily from rooted runners, but it rarely comes true from seed. It seems as anxious to cross with other Campanulas (Carpatica for choice) as Sax. *longifolia* is to cross with the other Aizoon Saxifragas, and the resulting hybrids of which there are one or two in commerce, are invariably much taller. *C. Raineri* is beloved of slugs, and should be protected from them until it has made its spring growth.

C. Raddeana is now within the reach of everyone's purse, and is a very distinct plant; its bright green heart-shaped leaves push up freely, and it bears rather tall bunches of metallic blue flowers. There is a paler form—var. *pallida*. This Campanula increases fairly rapidly, but I find it necessary to grow it in very poor soil, in moraine, or in soil containing some fairly big stones. It does not seem to flower freely except when in a "pot bound" condition and in soil, the best flowering plants are invariably those up against a big stone or squeezed in between two slabs of stone.

C. rhomboidalis grows in sun or shade, but prefers, I think, a half shady position in sandy leaf soil. It has wide open cups of varying shades of blue, on tall leafy stems which, unfortunately, are inclined to "flop"; the dwarf form—var. *nana*—is better in this respect, and the white form is very pretty. A friend brought back some years ago a very distinct plant of the rhomboidalis class, stronger in every way, with pale china-blue bells. I labelled it simply "Sp. from Annulli." It has strayed through various friendly hands to those of an English nurseryman, who I see catalogues it as "*C. annali*." I must send it to Kew and find out if it really is a new species.

Campanulas Saxifraga and tridentata are very near to one another, and of the same kin as *C. bellidifolia* and *C. alpina*. They make tufts of spoon-shaped leaves and bear large purple bells, singly, on 5 to 6 inch stems. They both resent excess of winter moisture, and are especially slug-beloved.

C. Aucheri seems to be an extra fine *C. Saxifraga*, bearing enormous flowers very early in the spring. I give all of them full sun and very stony soil, and a zinc ring in early spring. *C. thyrsoides* is a curious plant, which people either like, or dislike, very much. Personally it attracts me with its Kniphofia-like pokers of pale lemon flowers. It is only biennial, and should be grown in groups of four or more plants against a dark background to make an effect. There is a variety which throws up flowering shoots from the base all around the main stem, and does not always die after flowering. This I got under the name of var. *Carniolica*, *C. tyrolensis* seems near to *C. caespitosa*, but stronger in every way. *C. punctata* is a rambling Japanese, throwing up bunches of large leaves, some 6 inches high, and creamy-white flowers curiously spotted on the inside; it has a scarcer pink form. This Campanula is said to be a bad perennial, but I have found it as indistinctable as *C. collina* when planted in ordinary soil in semi-shade. It likes to get into the roots of deciduous shrubs, such as dwarf Almonds and Azaleas. In fact I have one plant which refuses to leave the roots of *Amygdalus nana*, although I have lifted the latter several times and removed, as I imagined, every atom of the Campanula. It is a very distinct plant, and curiously little known. *C.*

Zoysii is a minute gem with tiny bright green leaves and amazing flowers—long, cannon-shaped with accordion pleats at the mouth. It is an uncertain plant in cultivation, and I have only two that are really good—one in almost pure limestone moraine, and the other in very gravelly soil, and both have zinc rings round them. It is quite unlike any other Campanula, and charming when well grown.

Of new Campanulas, the most attractive that I have flowered is *C. crenulata*. From a tuft of narrow green leaves it throws up a spike bearing hanging bells of deep purple—deeper, if possible, even than those of *C. pulla*. When I saw the spike appearing I feared; and, alas! my fears have been realised, for the plant died after flowering and set no fertile seed. This is my one and only experience of this Campanula. Its death after flowering may have been an accident, but I never trust those "spike" Campanulas, they are nearly all biennial in tendency, and the worst of it is they are so beautiful that one must grow them again. *C. trichopoda* and *C. chinensis* I have not yet flowered, and I have not seen *C. Balfouriana*.

These are practically all the dwarf Campanula species I have come across up to the present. I forgot *C. Morretiana*. I flowered it once. A charming wee crevice Campanula, liking a tight crevice and moisture in summer. It disappeared the second winter. I have never since succeeded in importing either seed or soundly rooted plants, but hope to do so some day when its native habitat is out of the war zone.

Of dwarf hybrids pride of place should I think be given to *C. pulloides*, which in its best form—var. *Kewensis*—has all the good points of its parent, *C. pulla*, with added strength and size. Another plant which I received as *C. pulloides* (and which is probably a seedling form) has wider leaves, dull, instead of bright green, and slightly hairy, with upright, instead of nodding, bells of rather paler hue. I see that Mr. Meredith, in his work on "Rock Gardens," describes *C. pulloides* as an inveterate lime-hater. I wonder whether this description is the result of his personal experience or whether he so describes it merely on the strength of its descent from *C. pulla*, which was for so long and so wrongfully thus described? For here at any rate *C. pulloides* flourishes equally well in peat and limestone. I have yard wide patches of it in loam mixed with lime rubble and two nursery beds about 10 feet by 3 in the kitchen garden in ordinary soil that has been frequently dressed with lime. In all these soils and situations *C. pulloides* flowers and grows magnificently. *C. G. F. Wilson* is of the same blood, but smaller and paler with me; not so good a doer. The form with pale yellow foliage I found very miffy indeed, and having lost it several times shall not trouble to replace it again. Possibly the next finest hybrid is *C. Stansfieldi*, which I think was a natural hybrid between *C. Tommasiniana* and *C. Carpatia*; it has narrow, yellow-green foliage and pale mauve pendulous bells. It is a very desirable plant, and seems to prefer cool exposures in sandy leaf mould and peat. *C. Tynonsi*, *C. Profusion*, and *C. Haylodgensis* are all interesting hybrids, and look as if they had *C. Rotundifolia* blood in them. I have also an interesting cross, *C. Carpatia* × *C. Rotundifolia*, which is a very floriferous plant, flowering over a long period, and a tiny *C. pusilla* × *C. Carpatia*, with the habit of the former and small wide cups of the latter. The number

of *Campanula* hybrids in cultivation is not large. *C. Carpatia* seems ready to cross with any other. *C. Rotundifolia* is not far behind; but *Campanulas*, as a whole, do not seem to cross as readily as many other plants. I am very anxious to get a good *garganica* or *muralis* cross, but so far have not succeeded in raising one, and the number of natural crosses is remarkably small.

Nearly all *Campanulas* come true from seed, and can easily be increased by this method, and all, except the taprooted varieties can be readily increased in spring by potting up small underground roots. The taprooted species I have so far only attempted to raise from seed, but from the readiness with which their crowns make new growth after slugs have eaten them clean, one is encouraged to hope that they might also be increased by root cuttings, and all being well I shall try some next spring.

Violet Leaf Spot (*Phyllosticta Viola*, European).

This is a fungus disease, attacking the leaves of Violet plants, and it will be wise to take immediate steps to check its progress, should it appear in the garden.

APPEARANCE OF AFFECTED LEAVES.—White spots are apparent on both sides of the leaves attacked. These spots are round in shape and have definite margins; as they run into each other larger blotches are formed, and the entire tissues of the leaf may be destroyed. In the white patches minute black spots are visible to the naked eye, and when examined under the microscope these are found to be the spore receptacles or *perithecia* of the fungus from which escape the sporules or conidia, minute bodies, straight and cylindrical in shape, rounded at the ends and colourless. I have seen a bad attack of Violet leaf spot in a Dublin garden this autumn, the varieties *Princess of Wales*, *Madame Schwartz* and *Luxonne* being particularly badly attacked.

TREATMENT OF INFECTED PLANTS.—At the first sign of disease pick off and burn all infected leaves. If left lying about or thrown on the rubbish heap the spores will germinate and spread the disease to hitherto unaffected plants.

Having been carefully picked over, spray the plants with a solution of sulphide of potassium—about one ounce to three gallons of water. The sulphide should be dissolved in warm water, diluted to its proper strength, and applied through a fine sprayer to both under and upper surfaces of the leaves. The process of picking over and spraying will probably have to be repeated a second or third time, at intervals of a week or ten days.

In the case of a bad outbreak on plants closely crowded together, the above remedies will probably be quite useless to stop the spread of the disease, and the plants should be dug up and burnt.

Where Violets have been attacked by this or other fungus disease, they should not be grown at or near the same place the following season, as it must be borne in mind that most fungi parasitic on plants produce "resting spores," which are capable of remaining dormant in the soil until favourable conditions of warmth and moisture and the presence of a suitable host plant enable them to germinate and continue their reproductive activities. M. D., Dublin.

The Arboretum.

ALL planting of hardy deciduous trees and shrubs should be finished up as early in the month as possible. Tender subjects and evergreens are better left till spring, when the weather becomes warmer again in April and May. As a rule, planting or transplanting may be carried on much later in Ireland than in England or Scotland, as the early winter is usually mild, and perhaps wet. The worst months are January, February and March, when cold north winds, frequently accompanied by rain, sleet and frost, are prevalent. In the meantime much useful work may be done in clearing up nursery ground which has been largely drawn on to provide specimens for the grounds. Scattered plants which have been left may either be lifted and got rid of if not required, or may be transplanted into rows for growing on, and will thus take up less space. Some specimens may not be fit to transplant (that is, they may have been too short a time planted). They may remain for another season, and be left to grow on among the young stock, which may be put out in spring. The vacant ground having carried a crop of trees or shrubs, many lifted with balls of earth, will require a heavy dressing of new soil, decayed garden refuse, and partially decayed leaves, all of which should be collected during the season and kept for this purpose. It is a good plan where possible to change the crop occasionally. Quarters which have carried trees and shrubs for a few years might with great advantage be cropped for a year with reserve stocks of herbaceous plants or biennials. Where the Arboretum exists with a garden, this is quite feasible, and permits of the ground receiving a heavy dressing of farmyard manure. On taking up the herbaceous plants the ground will be in excellent condition for young trees and shrubs.

TREE PRUNING. This may now be proceeded with, and has for its object the formation of a well-balanced specimen with head and stem in proportion. The formation of such a specimen should be commenced in the nursery while the tree is quite young, and continued until such a time as pruning is no longer necessary. Particular attention should be given to the leading shoot, preserving it from injury as far as possible. Should it appear stunted or unsatisfactory, shortening back the shoots immediately below it will usually restore it to vigour. When it is desired to have a clean straight bole surmounted by a handsome head, the lower branches must be kept shortened in, and gradually cut clean away till the desired height of clean stem is obtained. The operation must be gradual, for if too many of the lower branches are removed at once the leader will grow rapidly upwards for a time, but the stem will not increase in thickness in proportion, and staking will have to be resorted to. When the tree gets beyond staking the leader will become bent if the whole sale cutting off of the side branches is persisted in, and the tree will never make a decent specimen. Many people prefer to see a fine specimen with its branches sweeping to the ground, especially in large parks and pleasure grounds. The cutting off of the lower branches when young will not prevent this, as the side branches of 10 or 12 feet up will gradually come down as they extend, and the loss of the others will not be noticed.

As far as possible pruning of deciduous trees,

to which the above remarks apply, should be completed while the trees are comparatively young. Occasionally it is necessary to remove large limbs from older specimens. This should be done in sections, leaving the final portion next the trunk only a foot or less long. In this way there is no fear of the weight of the branch breaking it off when partially sawn, and probably tearing off a strip of bark from the trunk. All wounds made in pruning should be cut to a smooth surface and tinned over with ordinary coal tar. All shortening back of side branches should be to a fork, and branches, large or small, which are entirely removed should be cut off quite close to the main stem, no vestige of a snag being left.

J. W. B.

Alpine Notes.

A GENERAL cleaning up is still going on in the rock garden, withered leaves are being picked off, and the ground weeded and lightly forked.

Gravel is greatly used in this garden, so during the frosty weather, when the ground is too hard to weed, the parts of the garden which have already been thoroughly cleaned are gravelled.

It is such an enormous advantage to start the very busy spring months with a well kept garden: otherwise—in the rush of planting, propagating, &c., the weeding is neglected, and before it can be attended to the weeds have seeded and the mischief is done.

The hard-wood cuttings put in in September are all looking healthy, and can be potted up during the first mild spring days, and so leave room for the general propagation of the alpine.

The alpine house and frames are opened later in the day now and closed early. The alpine house was thoroughly washed out and the gravel on the stages well raked up. It is quite remarkable how much alpine plants appreciate a clean house or frame.

In the rock garden all the plants are looking in good condition, even the recognised "suffers" are not yet complaining of the damp.

Saxifrages of all kinds promise to be excellent this year, the *Bursarias* are already showing bud; one can only hope that they are not being too precocious.

In the limestone moraine I notice *Sax. filicina* and *Sax. caesia* doing remarkably well, and in pure peat *Sax. retusa* and *Sax. oppositifolia latina* are looking splendid.

In the same moraine *Armeria caespitosa* and *globularia incanescens* are making great growth; the latter—easily the most charming member of its family—is of dwarf habit, with unobtrusive foliage, which is quite hidden from sight in June, when the plant is a sheet of small, globular powder-blue flowers. It is a native of Italy, but seems quite at home in our moraines.

The foliage of *Narcissus Triandrus albus* is making its appearance; it was planted in the granite moraine in October. *N. minimus* and *N. cyclamineus* are also showing above the ground. The great value of bulbs in the rock garden, however small, should not be ignored.

The species *Tulips*, such as *T. Persica* and *T. Kaufmanniana*, *Erythroniums*, *Fretilaria aurea* and *F. latifolia*, and the lovely *Anemone nemorosa* are amongst the most beautiful.

In the larger rock gardens great stretches of

Crocus Imperati and *C. Sieberi* in the spring and of *Crocus asturicus* and other autumnal flowerers are a very beautiful sight.

These bulbs and tubers give us some of our first flowers in the rock garden. We have the very lovely *Anemone Blanda*, *Anemone B. sylvatica*, and its still more beautiful and rare form, *Anemone Blanda fl. pl.* Then the invaluable *Irises* must not be forgotten.

We have *Iris reticulata*, *Iris Persica* and *Iris P. Heldreichii* amongst the earliest; also *I. histrioides*, *I. Vartani* and innumerable others.

Chionodoxa, *Scillas* and *Muscari* "Heavenly Blue" can all be used with great effect, as can *Cyclamen neapolitanum*, *C. Cilicium*, *C. Gouni* and *C. repandum*, the latter looking particularly well grouped near pine trees.

At this season in the garden one is particularly impressed by the great asset our small evergreen shrubs are to us.

Nothing could be more beautiful than the rich greens, silvers and golds which we can get by planting such shrubs as *Picea excelsa pygmaea*, *Juniperus Sabina tamariscifolia*, *Abies pungens glauca*, *Juniperus communis nana* and *Retinospora obtusa nana aurea*, &c. M. E.

Reviews.

Roses and their Cultivation.*

MR. T. W. SANDERS has for a long time been known as an expert rosarian, and in his enthusiasm for imparting his knowledge of Rose-growing, in which he has the great advantage of possessing a style at once simple and most lucid, he is second to none. His book on Roses on its first appearance quickly gained a large circulation, and took very high rank among the authorities on culture. Succeeding editions followed, enlarging its scope, and we now welcome the tenth, which is a greatly improved one. The author has rewritten many of the former chapters, bringing them into line with the many advances yearly taking place in Rose cultivation. He has also added several new chapters describing the formation of a Rosery and the cultivation of Roses as annuals.

The schedule of varieties has been rearranged, the varieties being classified under their various types. The inclusion of a number of coloured plates of beautiful Roses and monochrome plates illustrating the best of the modern varieties, has added considerably to the artistic appearance of the book.

The amateur in search for a single guide to the many troubles and pitfalls could not be recommended a better one. Here he will find advice on every department, from the initial step of planting to the achievement of his most ambitious effort of carrying off the highest prize for his box of exhibition blooms. Nothing is left untouched that requires a remark or explanation. The various forms of propagation, the description and uses of the various stocks, the mode of planting, naturally varying with difference in the soil, are treated at much length. His chapter on pruning,

very clearly illustrated, is one of the best in the book, and on reading it the veriest novice could not easily blunder in his first attempt with the knife.

The section on manures for Roses is exceptionally valuable, and in his list of fertilisers he very clearly explains the natural constituents of each and their various beneficial qualities, and gives the reasons for the time and manner of their application. Here he wisely impresses on his readers the necessity of judicious manuring. To some, hearing that Roses are "gross feeders," this caution is very necessary. In this point one can easily overdo the matter and instead of being a help, tends to sour the soil, and eventually sickens the plant. A noted Rose grower in this respect totally disapproves of the customary spring mulch of heavy manures, and advises instead as a stimulant good fibrous turf, chopped small enough to dig into the soil and well rotted leaf mould.

An interesting chapter could be written on the genealogy of the modern Roses. Let us offer the suggestion to the author for his next edition. The grower will look more kindly on Lemon Queen when he knows that it is a product of Madame Ravary and Frau Karl Druschki. This latter variety, too, gives the strength to Mrs. Andrew Carnegie, to which Niphetos adds its sweetness. We got Lady Hillington from Papa Gontier and Madame Hoste, Madame Melaine Souper was a parent of Rayon d'Or. La France and Caroline Testout gave us J. L. Mock, and that fine bloomer Lieutenant Chauré came from Liberty and Etoile de France. The list could be much lengthened if space allowed.

We heartily congratulate Mr. Saunders on his tenth edition. "G."

Apples and Pears at Carrigoran, Co. Clare.

READERS of IRISH GARDENING who followed the fruit notes contributed by Mr. Barker during 1915 will have gathered that fruit growing receives special attention at Carrigoran. The results of the good cultivation there practised have often been exemplified at the leading horticultural exhibitions, and we have pleasure in reproducing two out of a selection of photographs kindly sent by Mr. Barker.

Mr. Barker's employers take a warm and practical interest in fruit culture, and the photographs were taken by Mr. Fitzgerald. At the last fruit show at Ennis a dish of Pitmaston Duchess pears averaging 25 ozs. each were shown and apples of 20 ozs. of fine shape and colour were on view from Carrigoran.

We are unable to reproduce all the dishes of apples and pears then exhibited, but the series shows remarkably fine cultivation, which should act as a great stimulus to fruit growing in a district now becoming well known for fruit production.

The photograph of a small tree of apple, the Rev. W. Wilks, is instructive and bears out our estimate of this new variety as seen growing in Mr. Allgrove's Nursery at Langley Slough.

Mr. Barker says of it:—"The photo is of a tiny tree, only 2 feet high; it originally bore five apples, but we only left on one fruit to develop, and, when accidentally knocked off the tree, it had attained 23 oz. in weight."

* "Roses and their Cultivation." By T. W. Sanders, F.L.S., &c. Large Crown 8vo, cloth, 220 pages, 8 plates in colour. Price, 3s. 6d. net. London: W. H. & L. Collingridge.

Notes for Novices.

With the advent of the New Year, one of the chief points in vegetable gardening operations is to push on with the digging and trenching of all vacant ground intended for future crops. It should always be the endeavour of the cultivator to have the necessary manure wheeled on to the land during hard frosty weather. The work of digging and trenching should never be carried out when the ground is in a too wet and pasty condition. Trenching means the turning over of the soil to the depth of 2½ or 3 feet, incorporating with the soil as the work proceeds a good supply of farmyard refuse or any other kind of manure. Rough garden refuse and long stable manure is best laid on the bottom trench and the more decomposed manures kept near the surface. The bottom spit from each trench should always be set up on the surface as rough as possible, so that it shall receive all the advantages from the influences of the weather.

Autumn planted cabbage must have all vacancies made good and the surface soil between the rows frequently well stirred with a Dutch hoe. About the middle of the month early cabbage and cauliflower seeds may be sown in boxes and the boxes placed on the stage in the greenhouse until the seedlings appear, when they should then be removed

on to a shelf near the roof glass or stood in a cool frame. Admit air cautiously for a start, but as the seedlings advance in growth do not hesitate to supply plenty of air on all favourable occasions, as it is most important to keep the plants sturdy and stocky. As soon as the first rough leaf is made prick off the seedlings at 3 inches apart into other boxes in a compost consisting of two parts loam, one leaf mould, and one sand, and again return the plants to a cool frame. Cover up with mats in the event of sharp frost. If there is a desire to have young carrots ready for use in April and May, leaves and stable manure must be procured, two-thirds of the former to one-third of the latter, in order to make up a hot-bed to accommodate a frame. The leaves and manure must be well shaken up together, and finally set up in hot-bed style, leaving the bed 2½ feet deep after being firmly trod. On the bed stand the frame in position and fill in with finely sifted soil to the depth of 8 inches. Enclose a thermometer and put on the lights. When the heat of the bed has declined to 65°, firm the soil

inside, draw out shallow drills at 4 inches apart, sow the carrot seed therein and cover over lightly with fine soil. Ventilate cautiously as the seedlings appear through the surface, and when in need of moisture, water in with a rose can, using tepid water. One of the stump-rooted varieties is much the best for this early sowing in frames.

According to demand, seakale plants may be lifted from the open garden from time to time, preparatory to forcing. Cut away the roots and retain the best for planting out in the month of April. These roots or things as they are sometimes called, should be cut in lengths of 6 inches, placed closely in boxes of a similar depth amongst fine soil and stood in a cool frost-proof frame. The main crowns for forcing should be planted in 9-inch pots and placed underneath the greenhouse stage beside the hot water pipes. Water in thoroughly with warm water and place a 9-inch

pot upside down over the top of each to exclude the light. Rhubarb crowns may be lifted and forced in much the same way as seakale, but boxes instead of pots answer the purpose best. Seed potatoes should be arranged in shallow boxes and stood in a structure just frost-proof, and where they will receive plenty of light and air to keep the sprouting tubers stout and hardy.

Many kinds of fruit trees and bushes can be planted this month whenever the soil becomes

in reasonably dry working order, but no attempt to plant should be made if the soil be wet and pasty. In taking out the holes for planting always guard against making the holes too small. Tread firm the foundation of the hole, at the same time allowing a gradual slope from the centre to the edge. Fix a stake good enough to stand for several years almost in the centre. Before placing the tree in position cut clean away all jagged and torn roots, and also shorten back roots tending to grow downwards. Commence to spread out the lowest layer of roots and shake some of the finest soil amongst them. Then draw out the roots next above these, adding more soil, then those above them, and so on, giving the tree a gentle shake now and again to let the soil run between the fine roots. The uppermost roots should not be laid out any nearer the surface than 3 or 4 inches. Fasten the tree to the stake with a soft rope and place 2 inches of stable manure over the surface.

Apple, pear and plum trees that are not yet pruned should have this important work earnestly



WELL-GROWN APPLES AND PEARS FROM THE GARDENS AT CARRIGORMAN.

in operation at every opportunity when the weather is favourable. In pruning one of the main objects is to keep the centre—of bush trees in particular—quite open, so that when the tree is bearing a crop, sun, light and air can reach the fruits. In training the outer shoots of the tree try and keep them at least 15 inches apart. From each branch cut clean away all knobs and unripened growth. Shorten back the ripened side shoots to three or four buds and reduce the leader to two-thirds of its length. Should there be a surplus of fruit buds situated along any given branch, it is well to thin out the weakest, thus giving the others, when in flower, a better chance of setting and developing larger and finer fruits.

During last season's growth, trees that were infested with caterpillars and other pests that secrete themselves in the soil at the base of the tree in winter should have a couple of inches of the surface soil removed and burned. Apply a good dressing of soot and cover over the surface roots with some good rich soil. All bush plants of gooseberry, black currant, &c., ought to be pruned by this date and the prunings raked up and cleared away to the burning heap. Fork in a fair supply of rotten manure around each bush, but not too near nor too deep to damage the roots. Examine strawberry plants in beds. Remove all dead and decaying leaves. Lightly fork over the soil a couple of inches deep between the rows, and cover the surface with a thin layer of farmyard manure.

In the flower garden any alterations that are still intended to be done should be done now with the least possible delay. Vacant ground should be manured and dug up to the pulverising influences of the weather. Keep wallflower and other beds trim and tidy, and stir the soil frequently among the plants. Borders that contain bulbs may have the surface soil lightly pricked with a fork, and afterwards the surface mulched with 2 inches of short rich manure. Rose beds will require attention occasionally. It is important to see that none of the plants have become loosened at the neck by heavy gales. If the roots have become broken and damaged, the plants when they commence to grow will assuredly suffer a severe check, and probably make all the difference between success and failure. Insert a stake beside each plant bearing vigorous shoots and loop them to the stake with tarred twine. At the same time fill in any opening at the neck with soil and make firm with the heel.

M. D.

The Draining of Garden Paths and Roads.

THE month of January is a most suitable time to put into repair any part of the paths of the garden which may require it. This work is often neglected, and the weather conditions of January often make this work possible, especially in gardens where the soil is heavy and retentive of wet, and other work is more or less at a standstill. There is nothing which makes for comfort in a garden, and adds so much to its beauty, as well made paths which is half the work of well kept paths.

If at all possible have a system for draining off the surface water when heavy rains come. The work should be commenced at the lowest point in the garden, where the outlet will be, and worked up, finishing at the highest point. By this method an easy gradient for the fall of the water will be found.

The pipes—common field pipes, three inches for a small garden and four inches in diameter will do for the largest garden—should be laid down the centre of the walk, so that both sides of the path are served equally. These mains should be placed not less than eighteen inches below the surface of the path, and a fall of not less than one inch in ten feet run of pipe will give a good flow.

Traps to catch the water, nine inches square at the top and eighteen inches deep, should be made alternately on opposite sides of the path, and a distance of thirty yards between each trap would make on level ground an efficient means of taking off the water. Or sharp inclines twenty yards apart is a better method, and prevents the gravel

washing up in the paths. These traps should be covered with iron gratings. The outlets, which connect up with the main drain in the centre of the walk, should be half way between the grating and the bottom of the trap, then you have nine inches to collect sand or leaves which may wash down with the rains, and these can be taken up at any time, usually it is only necessary after a heavy thunderstorm.

Make a point of having iron gratings, which can easily be taken up. These are very cheap, and can be bought for a small sum.

Where conditions prevail which do not allow an outlet for the drainage, a large hole could be dug and filled in with a few cartloads of stones or rubble to make a soak pit. The space provided by the stones takes off the surface water, which soaks away at leisure. This is especially applicable to small gardens.

C. C.



APPLE REY. W. WILKS AT CARRIGORAN.

(See page 7.)

Silver Leaf in Fruit Trees.*

IN recent years fruit growers have suffered severe losses from a disease of fruit trees which for a want of a better name is known as Silver Leaf. Affected trees appear to be in perfect health and to present no external appearance of disease, except that instead of the vivid green commonly associated with healthy plants, the leaves—sometimes of a single branch only, at other times of the whole tree—have a silvery or leaden sheen, especially when looked at from an angle. Many kinds of trees are liable to be attacked, and in addition to fruit trees it has been recorded in horse chestnuts, sycamores, laburnums, Portugal laurels, walnuts, mock oranges, and even in the white dead nettle, and other herbaceous plants. The disease, however, is much more frequent in fruit trees than other kinds of trees, and commoner in plum trees than in apples, cherries, apricot, peaches, red currants and gooseberries. The shade of silveriness varies, and not only is the colour of a silvered apple leaf slightly different from that of a silvered plum leaf, but a variation may be noticed in the foliage of a Victoria plum and that of a Czar, when attacked by the disease.

CAUSE OF THE DISEASE.

Although this disease is now very common in some parts of England and is known on the Continent of Europe as well as in South Africa, New Zealand and Canada, the cause is not fully understood as yet, in spite of the scientific investigations into its nature which have been made both here and abroad. Most authorities are now agreed that in fruit trees and certain other woody plants, typical Silver Leaf may be caused by the presence of the fungus, *Stereum purpureum*, in the wood of the affected tree, and all symptoms of the disease have been produced by artificially inoculating a healthy plum tree with a living part of this fungus, and even with the spores, under conditions which preclude the possibility of infection from other sources. But while we may assume that, unless there is evidence to the contrary, most cases of Silver Leaf in fully grown plum and apple trees and perhaps also in other fruit trees are due to this fungus, the following points must be remembered:—

(1.) The silvery appearance of the leaf is chiefly caused by the presence of air spaces immediately beneath the skin, which has a tendency to break away from the cells which lie beneath it. The change in the colour of the leaf therefore, is due to the change in the light reflected from the surface, and not to the presence of the fungus in the leaf tissues. Where silvering is due to *Stereum purpureum* these changes in the leaf are to be attributed to disturbances in the normal life of the branch induced by the presence of the fungus below.

(2.) In the case of certain plants, such as the dead nettle referred to above, and of certain seedling plums, which have come under observation, no trace of fungus attack could be found, so that it is clear that silvering may be due to other causes than the presence of the fungus.

(3.) Leaves of many kinds of plants are often bleached by insect attacks and by other means, in such a way as to resemble Silver Leaf superficially. A little experience of true Silver Leaf in

plums, however, enables the observer to detect differences between the disease in question and these attacks without much difficulty.

PROGRESS OF THE DISEASE.

The usual course of an attack of true "Silver Leaf" in the case of a plum tree is as follows:—

- (a) A single branch of the affected tree develops the characteristic silvery sheen, the other branches remaining normal.
- (b) Several branches bear silvered foliage, often marked with brown flecks and streaks. Sometimes the leaves die as the summer advances.
- (c) Silvering becomes general, and the branches which have been affected longest die back. Sometimes a whole branch will die suddenly.
- (d) Several branches die and the tree bears a sickly appearance. Shoots low down on the trunk and suckers, both of which may or may not be silvered, often appear. These suckers cannot be successfully used for propagation.
- (e) The whole tree dies.

Shortly after the death of a large branch, the fructifications of *Stereum purpureum* generally appear on the bark, and after the death of the tree the fructifications appear on the trunk.

According to Brooks, who has made a careful study of the disease, in the early stages of attack the wood is the only part affected, and frequently a narrow zone of the youngest wood remains uninvaded for some time though sooner or later both this and the bark become affected. The fungus spreads much more rapidly lengthwise than across the wood, and in the case of the larger branches and trunk of the tree it may spread for a long time in the wood without any sign of injury to the bark being evident. The wood and the bark which are invaded by the fungus become dark brown in colour, chiefly owing to the presence of a gum-like substance in the cells. So abundant is the gum produced by the fungus in plum trees that large masses of it sometimes force their way out from the bark. The fungus may spread from the trunk into the roots of the tree.

The amount of discoloured wood, as seen in the cross section of a silvered branch, varies according to the length of time the tissues have been affected by the fungus. The disease does not always appear in that part of the wood immediately adjoining the affected leaves. If, however, search be made further down the branch or in the trunk of the tree the brown stain will probably be found. It must be remembered that *Stereum purpureum* grows normally as a saprophyte on dead wood, and that the greater part of the wood of a healthy tree, though enclosed by a ring of living tissue, consists, especially in the inner and older part, of dead cells. It is on this part of the tree that the fungus begins its development.

External development of the fungus takes place as the branches of the tree die so that fructifications of *Stereum purpureum* appear on the bark. These bodies are variable in shape, and change their colour with age so that they are not always easy to recognise. They usually appear in one or other of the following forms:—

(1.) Sometimes the fructifications appear as incrustations several inches long covering the under surfaces of the branches or on the sides of the trunk.

(2.) At other times they appear as projections

* Leaflet 302. Board of Agriculture and Fisheries, Whitehall Place, London, S.W., November, 1915.

from the bark, of a quarter to one inch in width, and arranged in crowded rows one above the other. In this case the upper surface is hairy, but the spare-bearing surface beneath is smooth.

When young and moist they are purplish in colour and leathery in consistency, but when dry they become dingy in colour and shrivel up. A spell of wet weather causes them to expand again, and each time that they do so they give rise to countless minute spores which spread the disease.

These fructifications may appear at any time of the year, but they are commonest when the heavy rains which usually occur in autumn make the air and wood wet.

When the spores of the fungus are liberated they are carried by the wind and may alight on a wound on another tree. There they would germinate, and the developing mycelium would live first of all on the dead wood, but, as has already been explained, it attacks eventually the living wood. The spores however that give rise to the disease need not necessarily come from a tree of the same kind as the tree attacked. *Stereum purpureum* from a silvered laburnum, for instance, may cause Silver Leaf in a plum, and spores from the fungus growing as a saprophyte on birch, beech, sycamore or any other forest tree which has died from other causes, may infect another tree in the same manner. The presence, therefore, of this fungus on any dead wood in an orchard may be a source of infection even though no case of Silver Leaf is present.

The wounds through which the fungus can enter may be quite small, but if a large surface is exposed, such as when a tree has been cut back and regrafted, or a branch has been broken by the wind or the weight of the fruit, the risk of infection is greater.

ECONOMIC IMPORTANCE AND DISTRIBUTION.

The effect of this disease on the fruit-bearing capacity of a single tree is considerable, but of slow development. Young trees are seldom attacked, and as a rule few silvered plum trees of less than five years old are seen. The disease usually appears even in a badly attacked orchard as the trees are coming into full bearing. As the fungus develops the yield of fruit gradually falls and finally ceases as the branches die. Death may not, however, occur for some time.

The effect on an orchard taken as a whole is more noticeable but irregular. The trees immediately adjoining the tree attacked are by no means always the next to show disease, and the fact that disease does not spread directly to the adjacent trees shows that the fungus does not travel through the roots or the soil to the next tree. An orchard may therefore present a general appearance of being silvered before all the trees are attacked, owing to a number of affected trees being affected about in an irregular manner, and it is only when a number of trees in a row are cut back for regrafting or other purpose that the disease spreads in an epidemic manner.

The Victoria and Czar varieties of plum are as a rule most liable to attack, but an extensive enquiry conducted by the Board in the fruit-growing districts of England failed to discover any special susceptibility or immunity of any other variety.

The distribution of this disease through England appears to be extensive, and many serious cases are reported from all the chief fruit-growing centres, especially those in which plum trees are common. No district appears to be entirely free from it, and as far as can be judged

it is spreading rapidly. According to Pickering the disease first became a serious economic pest during the rainy seasons which were experienced about 1903.

METHODS OF CONTROL.

Many experiments have been conducted with the object of finding a remedy for Silver Leaf, but although occasionally local successes have been claimed, no really effective remedy has yet been found. The explanation of the apparent success may be due to the fact that *Stereum purpureum* was never really present in the affected tree and that the silvering was due to other causes. It has also been shown that some affected trees have recovered without any fungicidal treatment, and even without any treatment at all. Very little reliance can, therefore, be placed on reports of the successful treatment of single trees.

Plugging affected trees with sulphate of iron has been tried. A hole has been bored into the tree, crystals of sulphate of iron have been inserted and the hole closed hermetically. Indecisive results only have been achieved by these means, and the process cannot be recommended. No really satisfactory treatment is at present known, that is to say no treatment which is certain to bring good results without running serious risk of causing damage in other directions.

The only useful advice that can be given at the present time is that precautions should be taken to prevent the spread of the disease.

(1.) It must be remembered that the fungus does not appear on the bark till the branch or tree attacked has been killed, and that so long as a diseased portion of the tree is capable of bearing leaves, even though they may be wholly silvered, it cannot spread the disease. As soon as the branch dies the fructifications of *Stereum purpureum* are liable to appear and under favourable conditions spread the spores of disease. It is therefore unwise to cut off branches bearing silvered leaves, unless the wound is promptly and effectively closed with a coating of tar. Dead branches should, however, be cut off at once, and turned before the fungus has time to develop, and the wound should be closed with tar.

(2.) It must be remembered that the fungus is to be found considerably further down the branch than the level at which the silvered leaves appear. When therefore an affected branch is broken or is cut off for any reason the wood should always be cut back to a point where no brown stain can be found.

(3.) Dead wood should never be left lying about in an orchard or garden where silver leaf exists. All such wood should be burned on the spot or sawn up and used for firewood immediately.

(4.) Dead trees should be cut down to the ground, and if for any reason they cannot be grubbed up, the stump should be charred and well covered over with earth.

(5.) Suckers should never be taken from silvered trees for purposes of propagation.

(6.) The practice of cutting back silvered trees and regrafting them is inadvisable, and may even be a means of spreading disease.

(7.) There is a persistent belief that disease is spread to healthy trees by pruning them with a knife that has been used for silvered trees. This belief is probably unfounded, but it is better to seal all such wounds with tar, as the bare surface affords an easy opening for infection.

(8.) The fungus flourishes in damp situations. Any improvement in the drainage of an affected orchard or garden will probably help to prevent the spread of the disease.

Obituary.

A SOLID and well known figure in Irish horticulture has just been removed by death in the person of William Pope, formerly foreman over the indoor department at the Royal Botanic Gardens. Pope had attained the great age of eighty-one years. He was born in 1834, and joined the garden staff in 1853. In 1869 he was promoted to be foreman, and held that position until he retired in 1899, after an unbroken service of forty-six years. When he entered the garden his grandfather and his father were members of the staff, both of whom remained in the service until they died.

William Pope was succeeded in 1899 as foreman by his son, Patrick Pope, who now holds that position, and therefore represents the fourth generation of the family on the garden staff.

William Pope was a man of fine physique, well over six feet in height, and broad in proportion. He was a keen observer and quickly mastered the technicalities of his craft, his quickness and retentive memory enabling him to grasp and remember the peculiarities of the many difficult and obstinate plants that often came under his care without much information as to their requirements. He was one of the first to have a collection of Orchids to cultivate in Ireland, and his success with many genera, such as *Disa*, *Catasetum*, *Cycloches*, *Aerides*, *Stanhoea*, was remarkable, many of these being sent from Glasnevin to Charles Darwin, when that great man was studying the fertilisation of plants. Pope was also very successful with all classes of hard-wooded plants, and there are in the Glasnevin collection several old specimens which came under his care over half a century ago. He was a wonderfully accurate judge of atmospheric conditions, and was frequently consulted as to weather prospects, his forecasts being rarely wrong. Gifted with the shrewdness and good qualities of the best type of Irishman, Pope was a faithful and valuable servant who never spared himself, and whose whole heart was given to the plants in his charge. For him no task was too hard, no day too long, and the bell at 6 p.m. often sounded to ears which heeded not when a special piece of work was unfinished. He made many friends, and the few who survive him have received the intimation of his death with genuine sorrow.



THE LATE WILLIAM POPE.

Railway Transport and the Nation's Food Supply.

ON the date of December 25, the Editor of *The Gardener's Magazine* draws special attention to the difficulties attending the transport of goods by rail during war time, especially as they are likely to seriously jeopardise the Nation's food supply in the immediate future, unless prompt measures are taken to improve matters. He points out that the first three months of the year cover the period during which the bulk of our farm and garden seeds must be handled, distributed, and planted.

Thousands of tons of seed corn, potatoes, and vegetable seeds of all descriptions must pass over our railways from wholesale to retail warehouses, and then to the farms and gardens throughout the country, and unless some means can be devised whereby quick despatch and prompt delivery can be assured, we shall be faced, early in the new year, with a difficulty that no amount of goodwill or ingenuity can overcome, but which will, in fact, prove a terrible menace to our food supplies for the year 1916. He considers the Board of Agriculture should take steps to safeguard the Nation in this matter, points out that Lord Selborne and his staff know that, in order to ensure crops, seeds of farm and garden crops must be in the ground by a fairly early date; and he suggests that the Board should make special arrangements whereby all farm and garden seeds

should take precedence over all classes of traffic that can be delayed without grave risk of injury. Seedsmen could be supplied with special consignment forms and identification labels, and the utmost integrity would have to be observed by the seed trade only to use such privileged forms and labels for their legitimate purpose, and thus assist the railways, and in no way to abuse concessions of this kind. It is, of course, almost equally imperative that fertilisers and manures should be treated in the same way, for much of this traffic is equally urgent since these must in many cases be ploughed or dug into the land before, or at, sowing time.

NOTICE: Correspondents will greatly oblige by observing the new postal rates which came into operation early in January.—ED.

Cypripedium insigne.

Of all the Orchids under cultivation none are more useful or popular than the one quoted above. It is grown in quantity in many collections, and it is often well represented in gardens where no attempt is made to cultivate other members of the great order Orchidaceæ, while the amateur with only one house often succeeds in getting a few flowers which would pass muster at some of the London shows.

It may be of interest to some readers to know that *C. insigne* was discovered by Dr. Wallich in the Sylhet district of north-east India, and sent by him to England about the year 1819, and we are told that it flowered for the first time in this country at the Liverpool Botanic Gardens in the autumn of 1820. It was subsequently found by Griffith on the Khasia Hills, and since then some thousands of plants have been imported.

It is a most variable *Cypripedium*, but a typical flower has a greenish dorsal sepal, with brown-purple spots at the centre and base, the apex being white. The petals are yellowish-green shaded with brown purple, and the pouch or lip is similarly coloured. There are also a host of named varieties, more or less distinct, and for a general display I should confine myself to three of the best, viz. :—

C. insigne Chantinii is a distinct variety, which is distinguished by the mauve-purple spots on the white area of the dorsal sepal.

C. insigne Harefield Hall produces a large bold flower, the dorsal sepal being heavily spotted with chocolate, and broadly margined with pure white.

C. insigne Sanderae is the finest of all the yellow forms. The flowers are a delicate primrose-yellow, excepting the broad white apical margin of the dorsal sepal, and a few pin-like brown dots at the base.

All this trio possess a robust constitution, and the blooms are of great value for decorative purposes.

CULTURAL DETAILS.—It should be stated at the outset that the subject of this article is one of the easiest to cultivate. All the varieties produce their flowers during the winter months, and as fog resisters they have no equal, which renders it a most desirable plant to grow near large manufacturing towns, while its lasting qualities in a cut state are remarkable. A few weeks after the blooms are removed any necessary repotting should be done, but this is not desirable every year, and the best results are obtained by giving fresh rooting material every third year. This consists of the best fibrous loam one-half, good quality peat one-fourth, and sphagnum moss one-fourth. All the fine particles must be removed, and the loam and peat broken up in pieces about the size of a walnut, while the sphagnum is cut up tolerably fine. A six-inch potful of crushed crocks may be added to each bushel of the compost, and when thoroughly mixed it will be ready for use. Ordinary flower pots should be chosen and filled one-fourth of their depth with drainage, over which is placed a thin layer of sphagnum to secure a free outlet for water. Over-potting must be guarded against, and if a receptacle is selected which will comfortably hold the roots all will be well. Plants of

moderate dimensions may be moved on intact, just picking out of the drainage, and any sour compost on the surface, but where they have become large, say in 16-inch pots, it is best to split them up. If left for a number of years, the centre will be unproductive so far as flowers are concerned, and the plant will gradually deteriorate. When it is decided to divide a specimen, the rhizome should be severed in a few places immediately after the flowers are cut, and the plant can be kept on the dry side a few days prior to disturbance. It may be expedient to break the pot to prevent excessive injury, and in making the division the roots must be carefully untravelled, and then repotted in rather small pots. Press the soil moderately firm, and it may be necessary to tie each portion to a neat stake until root action is well advanced.

SUBSEQUENT TREATMENT.—When the repotting is completed, sufficient rain-water should be afforded to wet the whole of the compost, then no more direct watering will be needed for several days, if the surroundings are kept moist by sprinkling the floor and stages with a water pot or syringe. So far as temperature is concerned *C. insigne* is not at all fastidious. I have grown good examples in the cool house, among the Cattleyas, in the plant store and vinery, also an ordinary intermediate house, but the most suitable temperature is 55° Fahr. during winter with a rise of 10 degrees or so through the summer months. I know some keep their plants cooler, but the grower will be well repaid by providing the few extra degrees of warmth. Shade will be required from the direct rays of the sun, and throughout the hottest period of the year a light spray over-head will be beneficial. A moist atmosphere is essential to secure healthy luxuriant growth, but this factor is not so important in the culture of *C. insigne*, as with many others belonging to the same genus.

All *Cypripediums* must be kept moist at the root throughout the year, the greatest quantity being needed during active growth, and it should be borne in mind that they are always growing more or less, and never really at rest.

INSECT PESTS.—There are comparatively few, especially if a house is devoted to their culture. Thrip is the most troublesome, but it can easily be held in check by vapourising the house with XL All, or spraying with a solution of XL All insecticide directly they are seen. Scale is rarely seen if the cultural requirements are right, and it should be removed with a sponge or pointed stick.

W. B.

The German Forestry Service— Ravage of the War.

THE *Canadian Forestry Journal* points out that one effect of the war is the virtual disappearance of the European professional forester. A German forestry journal, in its two last issues, printed 105 pages of obituaries of foresters killed in action. The sharp-shooting and scouting of the German Army has been largely done by men drawn from the State's forest forces, and the mortality among them has been high. There is now in Canada a very considerable number of men trained to this class of work.

Hints to Amateurs.

By R. M. POLLOCK.

Owing to the wet weather of the last two months, work in many gardens will be behind hand, and now every fine day must be made use of, and all work got through as quickly as possible. Where there are fruit trees the pruning and spraying should be completed and no delay allowed. When pruning is finished give the trees a spraying, as recommended in December issue, but be careful to do this on a fine quiet day, so that the spray will have a chance of adhering, and will not be wasted by high winds. After spraying collect all prunings and burn them immediately, and when this is done fork over the trampled parts round the trees, leaving the ground clean and open.

Where borders have to be remade, this can be done now. Lift out all the plants and heel them in a vacant corner. When this operation has to be done, a sacrifice must be made of the spring bulbs, as to do the borders properly everything must be removed. If the bulbs are in clumps, with great care some of them may be so lifted as not to break up the clump, and when the border is ready they can be again carefully replaced and their flowering not seriously injured. But if they are singly, or in lines, it is very difficult to lift at this season and replace them without damage. When empty, the border should be trenched to a depth of certainly 2 feet, some soils may require more, some less, and add manure, wood ashes, road scrapings, or decayed garden refuse. When complete the border will be considerably higher than it was before, owing to the material introduced into it, but in a few weeks this will sink, and the plants should not be replaced until it has settled to a certain extent. When replanting, care should be taken to plant with some idea as to colours, and those likely to clash should be kept apart. All the tall plants need not be religiously kept to the back, a break here and there in the line, or a bay of low growers, hidden from immediate view, will add considerable charm to a border.

Colour in flowers is a subject over which there is always endless discussion, and for this very reason gardeners should select and group their own plants and not trust to catalogue colours. White and yellow are really the only two colours about which opinion is unanimous. But take for instance the colour blue, lots of flowers are said to be blue, and if by that colour is meant the colour of *Delphinium belladonna*, or the wild *Viper's Bugloss Echium vulgare*, or *Achusa italica*, many so-called blue flowers are not blue at all. Mauve, lilac, heliotrope, and magenta are very confusing, and few people will be found to agree on any one of these colours, so that here again personal taste alone will discriminate between those that are a mere washy colour and a good striking one worth having. How very few really pink flowers there are, if by pink is meant the beautiful shade of colour arrived at by mixing red and pure white, the colour of our common monthly Roses, and the colour which is often got in Shirley Poppies, soft and pleasing without any tint of blue, and a colour curiously enough which seems to occur far more often in annuals than hardy perennials, and still catalogues will call plants pink which many would not allow inside their garden wall.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener to Lord Carrow, Castleborough, Co. Wexford.

The month of January is probably the most convenient time in the gardening year to undertake the repairs of the old or the making of new paths in the flower garden. The flower garden will have had all the traces of the old year removed before Christmas, and any beds or borders set aside for Dahlias, the spring planting of Carnations, both border and perpetual; Gladioli, East Lothian Stocks, Pentstemons, early flowering Chrysanthemums, and a host of other subjects which we have to plant before the spring flowering plants can be dispensed with. This vacant ground should be trenched if possible, or failing that, thrown up into rough ridges about thirty inches wide, and as soon as possible to get the benefit of frost and snow, which brings the soil into a mellow friable condition when we fork it down in the spring.

I much prefer this method of ridging and to fork in the manure in early spring on the ground I cannot trench deeply to putting in the manure in the winter on heavy cold soils. The manure keeps the soil in a cold condition much longer in the spring when it has been there all the winter, unless the ground has been aerated by trenching. I am firmly believe that in cold soils a lot of the feeding value of the manures is lost during the winter. The herbaceous border should be covered with farmyard manure and left on as a protection from frost until February, when it should be lightly forked in the ground. A light dressing of basic slag is also a great help, and can be put on with safety at any time, but best results are from early applications. Where farmyard manure is not to be had, bone meal is a good substitute for feeding the plants, and a little sulphate of ammonia in early March is a good help—mixed at the rate of three parts bone meal to one of sulphate of ammonia, and spread on the herbaceous border in early March at the rate of two ounces to the square yard; but where possible keep to the farmyard manure. Examine Rose trees, and make firm if the recent rains and winds have loosened them in the ground. A mulch of good manure should be put on round the stems if not already done. In cold parts of the country and in exposed places the Teas and Hybrid Teas would be safer with some bracken fern through their branches during January and February.

Where bulbs have been planted for an early spring display of flowers, and especially in corners of the garden where Snowdrops, Scillas, and the earliest bulbs are planted in grass, keep a look out for the work of rats, mice, or even birds if the weather is hard.

Plants of *Iris Stylosa* will be throwing out lovely flowers by the end of the month, and it is well worth covering with a hand-light to keep the flowers clean and to save them from frost.

The rock garden must be kept scrupulously clean: bits of leaves and other trifles often cost the owner dear if left about at this time of the year.

The alpinists, which are susceptible to damp, should have a piece of glass tilted sideways and

resting on a stone, so as to throw the water off the centre of the plants, while in no way preventing a free circulation of air around the plants. Above all things do not put the old fashioned bell glasses on Alpines, Clematis, of the autumn flowering section, of which Jackmanii is the best known type, should be pruned down to two eyes from last year's growth. This should be done at once; but the spring and early summer flowering varieties should not be pruned until after they have flowered.

Work should be pushed forward, and all arrangements made to enable the planting of trees and shrubs. Herbaceous plants to be pushed forward with all possible speed when February arrives. Planting operations for the month of January should be at a standstill.

Lawns are usually badly treated, and they well repay a little generosity on the owner's part. A topdressing of wood ashes and thoroughly rotted manure is ideal. Wood ashes alone is splendid, and a few shillings spent on basic slag in the winter and sulphate of ammonia in March and April pays us well in the improvement in the lawns. During this month every opportunity should be given to rolling the lawns when the weather conditions are favourable, this will help later on in the season, especially tennis courts and croquet lawns.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

THE year 1916 opens with our country still involved in the greatest war in history, and it is incumbent on all engaged in fruit growing to encourage production in every possible way. One effect of the war has been to decrease the available supply of skilled labour in gardens, large and small. Under-gardeners, as a class, have rallied to the Colours almost *en masse*, with the result that the ordinary routine of work has been greatly disturbed, and much difficulty is being experienced in carrying out the most necessary work. Whatever may be said for or against the upkeep of pleasure grounds and flower gardens during this troubled period, there can surely be only one opinion as to the importance of attending fully to our fruit trees. A country's fruit trees are a national asset, whether they are situated in a private garden or a market orchard; in either case the produce usually finds its way to the public markets, and has its effect there in regulating the price of an important article of food, and a year or two of neglect in the fruit garden is capable of undoing the labour of years, and is likely to entail considerable expense in righting matters in future years.

PLANTING.—Where planting still remains to be done, the first opportunity should be taken to finish this work, although in all cases delay is preferable to proceeding with the work when the soil is in an unsuitable condition. Never plant when the soil is so wet as to stick to the boots. If the work is delayed beyond the end of the present month, a little extra attention will be necessary during the ensuing summer in the matter of watering and mulching should a very dry period occur. Have a supply of fine soil, containing leaf-mould, in readiness: about a wheelbarrowfull of which, worked in amongst the roots when planting, will ensure a good start

being made. With a sharp knife shorten all thick roots, to encourage the production of fibrous feeding roots, and cut clean away all damaged portions. Mulch all newly planted trees with strawy manure, and guard securely against rabbits, if necessary.

STAKING.—Enough stakes should have been prepared on wet days for the trees that are to be planted. The stake should be driven in before the tree is placed in the hole, thus obviating the danger of damaging the roots afterwards. Place the stake on the side from which the prevailing winds come, and so manage the tie that there will be no danger of the stake rubbing against any part of the tree during windy weather. The stakes of all young trees should be examined annually, and ties renewed where necessary. At the same time see that the labels are secure and the wire affixing these to the trees not too tight. Never hang these round a main branch if it can be avoided, but utilise a spur, and if labels are placed at about the same height on all the trees it will greatly facilitate finding them when the trees are in leaf.

PRUNING.—Whenever the weather is suitable, pruning should be proceeded with, and, if possible, finished this month, so that all suitable days may be taken advantage of for spraying in February. If wet weather prevails, it will perhaps be profitable to take in hand the wall trees first, as planks can be used more conveniently in the case of these for the operator to walk on, and the bad effects of walking on pasty land avoided.

If scions are required for regrafting unsatisfactory trees, select medium sized, well ripened shoots from the side of the tree from which the best fruits are usually obtained. These should be carefully labelled and heeled in behind a north wall until required. This will ensure their being in a perfectly dormant state when the rising of the sap in the stocks denotes grafting time.

BUD-EATING.—If bullfinches are numerous, measures should be taken in good time to prevent damage. I find it necessary to net goosberries, currants—red and white—and wall fruit trees. The nets are placed in position early in January, and are made to serve the double purpose of a protection from bud-eating birds, and later from spring frosts during the flowering period, after which the nets are stored again until the fruit approaches ripeness.

Large standard trees of plum and damson are thickly sprayed with lime-wash.

THE FRUIT STORE.—Stored fruit should be examined at frequent intervals and all decaying specimens removed, and such kinds as are at their best disposed of at once. I find it best to clear each kind as it reaches this stage, as apples, especially, soon deteriorate in quality and market value. This system also conduces to orderliness and a sweet atmosphere in the fruit room, the latter especially being an essential condition to the preservation of fruit.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany, Dunsany Castle, Co. Meath.

THE CULTIVATION OF THE SOIL.—The most important point in the growing of vegetables is deep cultivation. It is a good practise to trench part of the ground every year. Trench the

ground where the summer and autumn vegetables have been grown, and by adopting the system of rotation cropping a fresh plot of ground can be trenched every year. In old gardens, where the ground has been manured year after year, an application of lime is very beneficial. One half bushel of slaked lime to the square rod, less if the ground be very light and more if the ground be very heavy. In old cultivated land rich in humus, lime suddenly increases productiveness in a remarkable degree, increasing the properties of dormant animal and vegetable manure. A green crop should be grown after an application of lime.

THE SEED ORDER.—As the New Year is with us, look up last year's notes, see what variety of vegetable gave the most satisfactory results, and get the seed order off as soon as convenient.

SEED SOWING.

PEAS.—As soon as weather permits, sow a few lines of peas on an early border. A dwarf variety, such as Little Marvel, if sown 2 feet apart in the lines, will give good results. Early Peas should be sown thickly, as slugs are rather troublesome to the early crop. On a border facing west, sow a few lines of a taller variety. Sow the lines 10-12 feet apart, the space between can be planted with early potatoes as the season advances. The peas protect the early potatoes from the spring frost.

BROAD BEANS.—Broad Beans may be sown this month on heavily manured ground. To protect the peas and beans from rats and mice, coat the seed with red lead. Slightly damp the seed with paraffin, sprinkle some of the powder over, and stir till all are coated.

ONIONS.—Sow onions in boxes and place in a warm house. Sow thinly, and if the bulbs are only required for kitchen use, they do not require to be transplanted into other boxes. A satisfactory bulb can be grown by planting from the seedling box to the open ground.

POTATOES.—Pot up a few potatoes to give a supply before the early frame ones come in. Use 8-inch pots for the purpose. May Queen and Midlothian Early are two good varieties for forcing. Make up a gentle hot-bed for the growing of potatoes in frames. Pit frames are to be preferred, as no heat is lost. Make up the hot-bed about the last half of this month. After the tubers are planted, a pinch of early cauliflower, cabbage, lettuce, &c., can be sown. When the seedlings are fit to handle they can be removed to other quarters. Place potatoes in shallow trays to start into growth, with the view of planting in frames when the shoots are an inch long.

FRENCH BEANS.—Sow French beans in 7-inch pots and, to keep up the supply, sow a few pots every fortnight. When the beans grow about 6 inches place a few twigs in each pot, to keep the growths upright. Give the plants a plentiful supply of water: syringe night and morning. If French beans are grown in a dry temperature white fly and red spider soon put in their appearance. A temperature 55-60 is suitable for growing French beans.

SEAKALE AND RHUBARB.—Place seakale and rhubarb in a dark forcing pit at intervals to suit consumer.

SALAD.—Chicory and endive may be placed in the forcing pit, like seakale: it requires darkness to force them to perfection. Guard against

excessive dampness. Mustard and cress may be sown in boxes at intervals, and placed in a warm house.

GENERAL REMARKS.—Trench and dig all open ground. Examine spring broccoli, and if the curd has formed remove the plants to a cool shed or heel them in dry shelt-red spot. Attend to the ventilation of parsley, lettuce and other vegetables in frames. Look to the onion bulbs in the store house and remove unsound bulbs. Where the root crops are stored in the open, see that they have plenty of protection from frost. Collect prunings and other materials and burn. Where deciduous trees are abundant and enough leaves have been collected for hotbeds, &c., burn what is not required if time permits. The ashes from any vegetable material is rich in potash. Remove the ashes to where they can be kept dry till they are required for use.

Diseases of Fruit Trees.

WE have from time to time published extracts from various periodicals dealing with Silver Leaf, and in the present issue we reproduce a leaflet published by the Board of Agriculture and Fisheries, dealing with the same pest. Scientists are busily working to find out the cause of the disease, and practical growers can do much by close observation and by relating their experiences in combating the disease to help to a solution of the problem.

Verbena chamædrifolia.

THERE is a wide difference of opinion as to the hardness of this brilliant and charming little native of Brazil. About Dublin it does not seem at all hardy, whether due to frost or damp.

A correspondent in the north, however, writes to say that he has inquired about a large plant which he admired last summer at Harrogate, and finds that it has been out for three years, and last February it stood 36 degrees of frost. The Harrogate plant dies back to the crown pretty much, but had made any amount of fresh shoots, about 12 to 18 inches long, and flowered profusely.

Some of our readers will probably have experience of this plant, and we would be glad to know their views as to its hardness.

Verbena radicans.

THIS makes a charming companion to the above species, being of the same procumbent habit, rooting as it grows. The flowers, however, are lilac coloured, while those of *V. chamædrifolia* are brilliant scarlet. Both species are useful autumn flowering trailers for the rock garden, and are easily propagated from cuttings taken in September. The cuttings root freely in a cold frame or under a hard-light, and make good plants for putting out in spring.—B.



THE rainfall here for 1915 was 39.6 inches. Rain fell on 190 days; the greatest fall in 24 hours was on Oct. 1st, when 1.72 inches fell. Our rain gauge is situated 650 feet above sea level.—R. BOWER, Ballylin Gardens, Mountrath.

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VOLUME XI

No. 120

ADVANCEMENT OF HORTICULTURE AND

FEBRUARY

1916

ARBORICULTURE IN IRELAND

EDITOR—J. W. BESANT.

Newer Chinese Cotoneasters.

EXPLORATIONS in China during recent years have added a number of useful *Cotoneasters* to our gardens, an interesting family of evergreen and deciduous shrubs, and one or two small trees. Attractive in habit and foliage during the summer, the greatest beauty of the majority is in autumn when laden with richly-coloured fruits. Only one or two *Cotoneasters* are worthy of attention for their flowers, the most important being a Chinese species, *C. multiflora*. A form of this from another locality was introduced by Mr. E. H. Wilson during his Veitchian expedition, and has been disseminated in our gardens as *C. reflexa*. As a flowering shrub the most important new Chinese species is *C. turbinata*. It is particularly interesting as the usual flowering season is May and June, while this species is in beauty about the end of July.

The cultivation of the *Cotoneasters* offer no problems to tree and shrub enthusiasts: they thrive in most soils, including sloping banks of poor soil: to clothe such a position they are eminently fitted. Their varied character and height adapt some for the shrubby border, specimens or beds for the lawn, and others for the rock garden. Among the newer Chinese species there are additions for each of these positions. In addition to being readily raised from seeds, *Cotoneasters* root freely from cuttings. These may be made of half-ripe shoots in July or August inserted in a heated frame, and firmer growths will root in a bed of sandy soil in a cold frame put in about October.

Useful additions for the rock garden are *C. adpressa*, a species first introduced by the French missionaries to France about ten years ago. It is a low-growing, more or less, prostrate species, forming a thick twiggy mass of growths several feet across, or hanging gracefully over boulders and ledges. The plants are deciduous, and have red fruits. Distinct from this is the *C. humifusa*, which forms an evergreen carpet on sloping banks or spreading over large rocks

and stones. This is one of Mr. E. H. Wilson's most distinct introductions from Western Hupeh. The fruits are red.

The value of *C. turbinata* as a late-flowering shrub has already been mentioned. It is a fast-growing evergreen shrub, 6 feet to 8 feet or more in height, useful as a specimen on the lawn or grouped in the shrubby border. The flowers are white, with rose-tinted anthers and red fruits in winter.

At least a dozen species may be mentioned as suitable subjects for lawn specimens, planting in groups in beds and borders or on the edge of the woodland and park. Curiously enough six of those are evergreen and six deciduous. The evergreens are *C. amena*, a closely-branched and spreading bush 4 or 5 feet high, with small leaves and bright red fruits. Taller in growth and with a more elegant open habit is *C. Fraencheti*. An allied plant is *C. pinnosa*, with less shining leaves and darker fruits. *C. Harroviana* is a useful shrub, 4 to 6 feet high, and as much in diameter, attractive both in flower and when freely clothed with red fruits. *C. Henryana* (*C. rugosa* var. *Henryi*) is very distinct in habit. It is free in growth, the branches arching or pendulous, with large leaves and dark red fruits. As a specimen evergreen bush *C. salicifolia* var. *floecosa*, if placed in order of merit, should have been mentioned first. The branches are elegantly arching, forming a distinct bush at any time. It is pleasing when in flower, and highly attractive when freely clothed with bright red fruits.

Among the deciduous species *C. Dielsiana* (*C. appanata*) is distinct in habit. Light and elegant in growth, it forms a tall bush with gracefully arching branches. The fruits are brilliant red. *C. bullata*, red fruits; *C. foxyolata*, black fruits; *C. moupinensis*, black fruits, are all free-growing shrubs. *C. divaricata* is one of the most attractive in fruit, and *C. Zabelii* is elegant in habit—both have red fruits. A. O.

Saxifrage Cotyledon and its Varieties.

WHAT is a typical Saxifrage Cotyledon? Mr. Irving says it "has short broad leaves, and the panicles of white flowers only occupy the upper part of the stem."

If this be so, then I have not got the typical form. Directly one comes to compare different lists confusion begins, and one gets altissima, Hermitage, pyramica, nepalensis, Montayoniensis, pyramidalis, and Icelandica.

There should be no difficulty about *S. Cotyledon pyramidalis*, though it varies in size, being more vigorous in some soils than others. Possibly altissima and Hermitage are the same thing, and merely an extra good form of pyramidalis. The outstanding features of the latter are the true pyramid-shape of the flower spike which branches from the base, and the carmine-tipped flowers. It can be picked out at once from all the other silvers as easily as longi-

folia. A most vigorous grower, liking a rich soil, it multiplies exceedingly, has a stem from 2 to 3 feet in length, flowers three-quarters of an inch across, and solid white, with brilliant carmine spots so close together as to look like a ring at a little distance. The rosettes vary in size, the larger ones being 7 or 8 inches in diameter, the more the smaller ones are thinned out the larger the remaining ones will grow.

On the whole I regard variety pyramidalis when in flower as the most handsome and decorative of all the big silvers and a good deal more graceful than the stiff formal spike of *S. longifolia*.

Another plant here under the name of pyra-

midalis is smaller in all its parts than the one just described, the rosette is not so flat, the leaves are narrower and the flower spike is much smaller. Evidently a "poor relation."

A third plant, which I take to be Montayoniensis is quite different. The rosette, which is not more than 3 inches across, is strikingly handsome. The leaves (broad for their length) are much rounder than any other of this class, have a very glossy surface and a strongly-marked silver margin. The stem is red and, on the plant

photographed, measured 18 inches in length. As will be seen, the flower spike is pyramid shape and most graceful. The flower is pure white, unspotted, but quite distinct in shape from pyramidalis, the petals being narrower and further apart. The shape of the flower is indeed very much like *S. cochlearis*. It is a most desirable plant as well for the beauty of the rosette as for its lovely flower spike.

Icelandica I have grown for four or five years, but so far have not flowered it. It makes big rosettes, whose leaves hug the ground, and

plenty of offsets. The leaves seem brittle, and are easily damaged, which probably accounts for its going off at times without any very apparent reason. I hope that one of these days a big rosette will justify its existence by throwing up a correspondingly big flower spike.

J. HARPER SCAIFE.



Photo C.

SAX, COTYLEDON PYRAMIDALIS, WITH CAMPANULA MURALIS BELOW.

J. H. Scaife.

Saxifraga apiculata alba.

THIS is one of the prettiest and most satisfactory of the early flowering varieties, and seems to flourish in sun or shade, and is not particular as to soil, providing the drainage is good. It is a quick grower and easily propagated by division. Quite small pieces quickly form a mass of roots, and may be planted in pockets and crevices, where they will soon form nice cushions and produce abundance of white flowers in early spring.

Rhododendron dauricum.

THIS is the earliest *Rhododendron* to flower, and is a charming sight in the middle of January when smothered in its beautiful rosy-purple flowers. It is a deciduous species, flowering long before the leaves appear, and is worth a sheltered position. Flowering so early, it is liable, of course, to be caught by frost, and may be ruined in a single night. For that reason it is advisable to

plant in a position where the morning sun will not reach it too soon, and where it will be sheltered by Conifers or other evergreens. *Rhododendron moupinense* is opening its flowers at the same time; and if this new Chinese species, which is dwarf, bearing white flowers, should prove constant in opening thus early, one can imagine a very pretty combination by planting the two together. *R. dauricum* is, as stated above, deciduous, while *R. moupinense* is evergreen.

It is a good plan to use some of the hardy Heaths under the early flowering deciduous *Rhododendrons*, especially the Mediterranean Heath and its varieties. They give a certain amount of shelter to the *Rhododendrons* when young, as well as shading the roots from hot sun in summer, and being evergreen they act as a foil to the flowers of the *Rhododendrons*.
B.

Linum grandiflorum rubrum.

THIS pretty red-flowered Flax is one of the showiest annuals we have. In habit it much resembles the common blue Flax, and grows some 9 inches high, bearing large deep red flowers from July onwards. Seeds should be sown in the open, in a sunny position, in April, and thinned out to about 4 inches apart. Water should be applied in dry weather.

The Alpine Garden.

THE first bloom noted in the Alpine garden was *Galanthus Elwesii* (December 10th), and since then *Saxifraga hursleriana*, *Sax. b. major*, *Sax. b. gloria*, *Sax. b. speciosa*, and *Sax. b. tridentina* have come into bloom.

These *Saxifrages* are by no means hard to propagate, and if a little trouble is taken a nice stock can be got up in quite a short time.

After flowering, single rosettes can be taken off the growing plant and put singly into 1-inch pots which have been filled with sand, to which a little leaf-mould, lime rubble, and a very small quantity of loam has been added. These pots should then be plunged in sand and covered with a bell glass, and in July the small pots can be plunged in 3-inch pots, wintered in a frame, and in the spring they will be ready for repotting from 1-inch to 2½ or 3-inch pots.

Of course there are countless other ways of propagating these

Saxifrages; many of them may be better ways, but from personal experience I can recommend this method as satisfactory.

It is very difficult to get outside work done at present, as the ground has been reduced to such a sticky state by the incessant rain; but weeding and loosening the soil with a hand fork can be done; and the Primrose ground in the wood should be well forked through. Primroses and Polyanthus being planted or thinned out wherever necessary.

The most beautiful effect can be got from planting large stretches of Polyanthus under the pine trees of an Alpine garden; the garden has to be very large, and the pine trees well removed from the actual rockwork, however, to make this possible.



Photo by]

J. H. Senife,

SAX. COTYLEDON MONTAVONIENSIS.

We took advantage of the mild weather to plant a large stretch of sloping ground backed by Austrian pines, with the lovely Alpine heath Erica Carnea.

This heath gives us one of our most lovely early spring effects, and looks particularly fine if planted in a splash of yellow, say *Arnica*.

Dusty Miller. It also has the advantage of growing quite beautifully even if lime is present in the soil. Here we grew it in a mixture of peat and loam.

A new moraine has been constructed during the last few days. First we took out about ten feet of soil, and placed at the bottom of the moraine about one foot of large stones and sticks, next a layer of soils laid grass side downwards, and we then filled in the moraine mixture which had previously been well mixed up and was composed of limestone chips, fine gravel, sand, leaf mould and peat, putting three barrow loads of chips, gravel and sand to one and a half barrow loads of leaf mould and peat. Some rocks were placed to correspond with the strata of the surrounding outcrops, and the work was complete.

A moraine made up in the same way last year has proved a great success.

In the Alpine house, *Primula Winteri* and *Primula Allionii* are in bloom, the latter being covered with its charming, almost sessile, rosy-mauve flowers.

M. E.

The Rose Garden.

THE swelling up of the leaf buds and the quick growing of the young shoots at the tips of the Rose plants that have not been checked by any severe frost plainly show that the short rest that Nature allows has come to an end. Though before the month has passed many of our Roses will be well covered with fresh young foliage which, naturally, except in sheltered spots, will get a sad set back from the coming cold biting winds and unwelcome frosts, the Rose grower will not worry over the apparent waste of the energy of his favourites. These premature growths serve as an outlet to the rising sap, and save the dormant buds lower down the stem from which the summer blooms are to be expected. When the pruning time arrives in March all this top growth will be removed, and from a rosarian's point of view the real life of the Rose begins.

At the present time all planting that has been postponed through the inclemency of the weather should be carried through at once. As the sap begins to flow, promoting growth and the formation of young shoots, any planting

inadvisable and poor results in the Rose beds in the summer and autumn will follow from too much delay in this matter. The trees required should be chosen and ordered at once, and the ground finally prepared for their reception. This is a good time for getting in the delicate Tea Roses that otherwise might have been injured by a late planting in November or December, though in those places that do not suffer great and continuous frosts the advantage may be very slight.

Established Roses of over a year's growth in the garden may be mulched now with old farmyard manure. This can be dug in and incorporated with the soil once the pruning is done next month. Roses that have been planted this autumn have no necessity for any such mulching. The ordinary soil, unless absolutely impoverished, will give quite sufficient nourishment for the roots until well on in the summer, then a slight stimulant of liquid manure can be added.

Not a season passes but marks the arrival of some superlatively good Rose from one of those many growers in the country who spend such energy and patience in the pursuit of the unachievable—the production of the very best Rose. The first class Roses of twenty years ago seem very shy and unpresuming when compared to the prizes of latter days. Though an old grower will sadly admit that the gain in new shades of colour and shape and size has often resulted in the loss of what should be the first quality of a Rose—namely, its perfume. This cannot be said of any of the Roses here mentioned. Gorgeous (Hugh Dickson, Ltd.), a beautiful orange-yellow, heavily-veined with reddish-copper, is a very striking Rose, suitable alike for bedding and exhibition. Mrs. Franklin Dennison (S. McGredy & Son), with blooms as large as Mildred Grant and a habit as vigorous as Frau Karl Druschki, and a glowing Primrose-yellow colour; it has a delightful perfume, and will take rank as a prime favourite in the garden when more widely known. Edward Bohan (Alex. Dickson & Sons, Ltd.) is a most attractive Rose, a very floriferous bloomer and vigorous habit, its brilliant orange-scarlet colour will command much attention. Its foliage is bright leathery holly green, and affords a pleasing contrast to the many blooms. Mrs. Hugh Dickson (Hugh Dickson, Ltd.) will be a worthy companion to the well-known Hugh Dickson from the same grower. In colour a deep cream with heavy suffusion of orange and apricot, it has the high-pointed centre so much in favour; the flowers are carried in great profusion and have a charming perfume. Cupid (B. R. Cant & Sons), single, flesh colour. Muriel Dickson (Hugh Dickson, Ltd.), an Austrian

briar hybrid, cherry-reddish-copper. Annie Crawford (Dr. J. Campbell Hall), pale pink. National Emblem (S. McGredy & Son), dark crimson and mildew-proof foliage. Imogen (W. Paul & Son), orange-yellow, are among the best of the new varieties of 1915.

The smallest garden should contain at least one of the many varieties of single Roses now in cultivation. They are most conspicuous, especially at the early part of the season. One of the very best is Irish Fireflame, even finer than Irish Elegance, being freer in growth and a more continuous bloomer. It produces beautiful orange buds splashed with crimson, becoming, as the flower expands, satiny-gold. The flowers grow in large upright trusses, and have a delightful perfume. The blooms arrive up to late autumn, and for table decoration could hardly be surpassed. It would be hard to beat Simplicity if a white single were wanted. Its size and cupped shape render it very attractive. It makes a very good bush, and does equally well as a standard. Gottfried Keller is a deep orange-yellow and a perpetual bloomer, though not quite so hardy as one would wish. Bardon Job, dark crimson, has been long well known, and is most reliable. None of these require much pruning after the first year.

Next month the pruning of the various varieties of Roses will be discussed.

J. A. F. G.

Hardy Plants for Spring Planting.

SOME herbaceous plants with fleshy or brittle roots are apt to die if planted in autumn. In the process of transplanting, the roots of all plants are more or less broken and injured. In the case of those that have a satisfactory fibrous root system the loss of a few roots or rootlets is more than counterbalanced by the rapidity with which new roots are formed. This is not the case, however, with the thick fleshy roots of some plants. In their case the wounds naturally take longer to heal, and if planted in autumn the soil may become cold and wet ere the healing process is complete, and decay sets in with fatal consequences. Thus it is in such cases better to defer planting till spring, when, as the soil warms and the plants quicken into growth, new roots form more quickly and broken ends are sooner healed over.

Dicentra spectabilis, or Bleeding Heart, as it is often called, does better when spring planted, even though the flowers are early produced. The roots, as anyone who has handled the plant knows, are extremely brittle and easily broken, and although when planted in spring growth is

usually satisfactory, sometimes a late frost plays havoc with the tender foliage, so that a position somewhat sheltered and not exposed to the early morning sun is preferable.

Galtonia candicans is a handsome bulbous herbaceous plant suitable for spring planting, bearing in August beautiful spikes of white flowers. It is admirable for the herbaceous border and looks remarkably well planted through beds of *Pentstemons*. It is also valuable for planting in groups among *Peonies*, and will give a fine autumn display after the *Peonies* are out of flower. Although the bulbs may be left in the ground for several years in warm, well-drained soil, yet if planted in autumn, at the outset many of the bulbs may rot owing to moisture collecting in the hollow on the top of the bulb where the previous year's growth arose.

Gaillardias, which are so bright and showy all through the summer and autumn, succeed best with spring planting. They, too, have rather fleshy roots, and frequently disappear if planted in autumn. The best way, or at least a very satisfactory way, is to raise plants from seed annually and treat as biennials. The seed should be sown in May, and when the seedlings are large enough to handle prick them out six inches apart in a bed of rich soil, and there leave them till the following February or March, when they can be carefully lifted and transplanted to their flowering quarters. Treated thus each seedling will make a large plant, and during the summer and autumn will produce scores of flowers. A good strain of seed will give results good enough for any garden, but, as some people may not have convenience for seedlings in small gardens, it is well to know that probably most of the nurserymen advertising in IRISH GARDENING can supply named varieties to colour, ready for planting, and many nurserymen supply these in pots.

Incarvilleas are really beautiful plants with large handsome flowers. Although one or two of the species have been known for a good many years now, it is only recently that they have been cultivated to any extent in gardens. Now, large breadths are grown in nurseries, and a magnificent sight they are when in flower. Many are also grown in pots, consequently they can be safely planted even when started into growth. The roots are very thick, fleshy and easily broken, therefore great care should be taken in transplanting. A deeply worked, well drained soil is best, and an open sunny position, but sheltered, if possible, from rough winds. Perhaps the best known species is *I. Delavayi*, a handsome plant with long deeply-toothed leaves bearing on scapes, some two feet high, clusters of tubular rosy carmine flowers with yellow throats.

Hearty *Hea grandiflora* is an equally fine species, or perhaps rather better, given that the former rosy crimson might fade, but it, but one does not care to be dogmatic about shades. *L. grandiflora* has a very fine variety, stronger growing than the type, and dividing. *L. Delavayi* is vigorous. There are one or two subshrubby species of *Hea*, notably *L. Oler*, with smaller thick cut leaves and rosy flowers, and *L. variabilis*, with slender graceful growths bearing rosy purple flowers. These latter species are valuable for sunny warm places at the foot of a wall, or in a narrow border fringing plant borders.

Kniphofias, better known as *Tritonias*, are essentially herbaceous plants for spring planting. Their numerous long fleshy roots are easily injured, and autumn planted specimens, if they do not succumb, at least do not flourish for twelve months after. If planted in spring just before growth commences, progress is rapid and good plants will result by the end of summer. Some flowers may be produced the first year, but no disappointment need be felt if this is not so, as even established clumps sometimes miss a season and produce but few spikes. A few good varieties are *K. aloides erecta superba*, *K. aloides Saundersi*, with huge spikes of orange scarlet flowers; *K. Burchellii*, very free flowering, with fine spikes of red flowers; these are all tall strong growers. Among smaller kinds, suitable for borders and small gardens, the following are good: *K. corallina*, with lovely coral flowers; *K. Macowanii* and *K. Nelsonii*, coral red or scarlet and flushed orange. Newer dwarf sorts are *K. Goldelse*, pale yellow; *Torchlight*, flame colour; and *Rufa*, with orange and yellow flowers.

Montbretias, properly called *Tritonias*, belong to the *Iris* family, and now include some of the most beautiful autumn flowering herbaceous plants. It is best to lift them in late autumn or

winter, when the leaves have died down, and plant in spring. When left in the ground they continue to increase rapidly, and quickly deteriorate in strength, forming a mass of leaves, but few flowers. A rich soil is essential and a sunny position. All are orange or orange-red. Some of the best are *Prometheus*, *George Davison*, *Westwick*, *Star of the East*, and *Marthe Billard*.

The brilliant scarlet *Lobelias*, the glory of the autumn garden, are best planted in spring. It is customary to lift in autumn and store in a cold frame protected from frost, splitting up the crowns in early spring, and growing on in the frame till planting time. At the first time of

dividing not many roots will be found, but these are rapidly produced as the heat of the sun increases and water is applied. When large enough they are transferred to the flower beds, when danger of frost is over.

Strange to say, when left out all winter in a bog bed, where the *Lobelias* are particularly at home, the plants are perfectly hardy

through any amount of frost, and totally submerged for weeks at a time. There in March and April the clumps are fresh and healthy, and just as growth is commencing they are divided and replanted with plenty of cow manure mixed with loam, and in September are from five to six feet high, with stems as thick as a man's thumb, and bearing fine spikes of dazzling scarlet flowers.

B., Dublin.

Waterside Planting.

This subject has been written about before in *IRISH GARDENING*, but will bear repeating as it is one of great interest and capable of fine effect when well carried out. The two photographs accompanying these notes illustrate admirably two distinct phases of waterside planting. One shows a charming view in the beautiful gardens



Photo.

VIEW OF POND IN THE BOTANIC GARDENS, GLASNEVIN,
SHOWING REFLECTION OF TREES AND SHRUBS.

K., Dublin

at Mount Ussher in Co. Wicklow, where water is plentiful and made good use of. In the particular view here given advantage has been taken of a small stream which runs through a little valley just inside the main entrance. The ground on each side of the stream is low, and rises very gradually to a higher level, where various choice shrubs find a congenial home. Next the water, where the soil is always moist, colonies of moisture-loving plants are grown, and in spring and early summer make a fine display. On the right of the picture will be noticed a fine piece of the beautiful Himalayan *Gaultheria nummularifolia*, which rejoices in moist sandy peat; while on the left are many colonies of *Primulas* of various kinds, and standing out prominently will be noticed the handsome spikes of a *Dodecatheon* or American Cowslip, as it is called.

The possibilities in this kind of gardening are infinite, given the necessary water, either natural or artificial.

In addition to the *Primulas* of many kinds, *Spiræas*, *Astilbes*, *Scarlet Lobelias*, *Lysimachias*, *Trollines* or *Globe Flowers*, *Anemone narcissiflorum*, *Meconopses*, &c., can be used effectively, while where the water surface is more ample, and sufficient space is available on the banks or sides of the stream, plants of noble dimensions, such as *Gunneras*, *Bamboos*, *Polygonum espidatum*, *P. sachalinense*, *Saxifraga Peltata*, *Rodgersias*, *Podophyllums*, &c., are capable of effects on the grand scale.

Another aspect of waterside planting is depicted in the photograph taken in the Royal Botanic Gardens at Glasnevin. Here the effect of arboreal vegetation is more emphasised, and even though the season is winter—as seen by the leafless condition of the trees—the wonderful effect of the reflections in the water bespeaks a calmness which finds its reflection in the mind of the observer.

Though very tall trees, close to a pond such

as is shown, are rather an evil when lesser plants are grown on the margins or Lilies in the water, yet their presence some distance away adds a charm and dignity to the scene. Dwarfier woody plants, such as the *Dogwoods*, especially those with coloured bark, *Golden Willows* kept cut down annually, and in fact most of our showy flowering shrubs, may be planted closer to the water without injury to the herbaceous plants enumerated above and without interfering with the free play of the sun on the water.

B.

Primula Listeri.

A FIRST glance at the accompanying illustration leads one to surmise that it is a print of *P. obconica*, which it very much resembles.

The subject of the illustration (see p. 25) is of recent introduction—coming from the Himalaya—and may be described as a worthy acquisition to our decorative *Primulas* for indoor use. I do not think the species can be described as hardy, al-



VIEW IN THE GARDENS AT MOUNT USSHER, CO. WICKLOW.

though I have never seen the result of any outside trial in connection with *P. Listeri*. The flowers are white and borne in spreading clusters quite early in spring, the pedicels varying in length, thus making the plant more graceful and attractive. The flowers last for a considerable time in a fresh condition.

Successful cultivation of the plant is easily accomplished by giving it identical treatment to *P. obconica*. Its propagation is secured by seeds or division.

There is a Chinese form of the *Primula* in question—*P. sino Listeri*—and it is stated by some authorities to be more amenable to cultivation in this country. The flowers are also said to be larger, and the whole plant more vigorous, although very vigorous qualities are assets of *P. Listeri*.

H. C. ELSDON.

roundish leaves in whorls of three on branches about a foot long. The branches lie somewhat flat on the pot or hang lightly round it; the leaves are green and white, and in a cool atmosphere the branches fall off in winter, but new ones are plentifully produced in spring again.

Of Palms there are many kinds grown by market men, but the most generally useful for rooms are the Kentias and Scaforthias—these being the names by which they are most generally, though not correctly, known. They are graceful plants, with divided leaves, and when properly grown and prepared make good plants for rooms.

Of flowering plants, the trailing *Campanula isophylla*, with both blue and white flowers, is very charming in a window, and may be kept for years. The ubiquitous *Scarlet Geranium* is extremely useful, and endures a great deal of wrong treatment. Many of these "*Geraniums*" have been kept in windows for years flowering for long periods. The scented-leaved "*Geraniums*" are also extremely interesting and useful for rooms. There are scores of kinds, but only a few are grown in any quantity for the market.

The *Scarborough Lily* *Valotta purpurea* is a magnificent plant, which is very often better managed in a cottage window than in the best equipped garden. It is a bulbous plant, and does best when left in the same pot for years till the pot is full of roots: then it flowers freely, throwing up flower stems perhaps 2 feet high, bearing several red funnel-shaped flowers. As the leaves die off it should receive less water, or practically none till signs of growth appear again.



Photo by

PRIMULA LISTERI.

(H. C. Elsdon.)

Notes for Novices.

Sow another box of cabbage seeds, or if a cool frame is at hand sow a few seeds within on fine light soil. Cover the seeds lightly and keep the frame closed until the seedlings appear, afterwards admitting plenty of air on all favourable occasions. For an early supply of cauliflower and Brussels sprouts, equally the same treatment in the method of seed-sowing and preparation of

the soil as advised for cabbage applies to these. The first sowing of broad beans can now be made in an open, but somewhat sheltered, part of the garden. The ground should first be prepared and brought into good workable condition. Draw out lines with a draw-hoe 2 feet apart and 3 inches deep; set a double line of beans at 6 inches apart in each line, and cover in with the finest soil. Beck's Dwarf Green is a suitable early variety, and grows to a height of 2 feet. Early peas are so much appreciated that a choice site should always be selected for the first sowing. A well trenched soil of a rich nature will give the best results. Allow a space of 3 feet between each row; draw out lines 2 inches deep, sow the seeds moderately thick therein, and cover with 2 inches of fine soil. One pint will sow about 13 yards. It will be well to keep a sharp look

out for rats and mice, as they are often troublesome in a garden at this time of year. Seakale in the open may now have coal ashes laid over their crowns to the depth of 9 inches. It is essential that the developing heads be kept in darkness to ensure perfect blanch. The heads of seakale produced under this system of forcing are much superior in quality to those that have been

previously lifted and brought indoors to be forced for very early use. The best results attained in forcing asparagus is by means of a frame placed on a hot-bed, made up of stable manure and leaves. When the heat of the bed has begun to decline, the asparagus plants from the open ground should be lifted with a strong fork and set inside the frame close together on a 2-inch layer of soil. Cover the roots and crowns with a mixture of leaf-mould and fine soil, so that when the work of covering is finished each crown will be surfaced with a couple of inches of soil. Water in the bed thoroughly with a rose can, using tepid water for the purpose. Air must be admitted whenever the thermometer rises to 70° with sun-heat. As soon as the new heads begin to push up through the soil, ventilate daily, more or less according to the weather conditions.

Sow parsnip seeds during this month, as they require a long season of growth. Being a deep-rooting vegetable, the ground should be well-trenched in the autumn 3 feet in depth, but no

rows, or fresh manure should be mixed in with the soil. One that has been well manured for the previous crop, such as celery or peas, is a good medium in which the ideal type of parsnip is likely to be produced. Lightly fork over the soil to break a fine sowing fifth. Draw out narrow lines at 18 inches apart and 2 inches deep. Sow the seeds moderately thin in calm weather, and cover with the finest of the soil. One ounce of seed will sow a line of 80 yards.

All pruning of fruit trees and bushes must now be hurried forward so that the spraying operation may be carried out in due time. Unless the trees are in a very unclean condition, one winter spraying should suffice. Caustic alkali wash is the solution most generally used with satisfactory results. The following formula may be relied upon as being a safe one: Caustic soda, 1 lb.; potassium carbonate, 1 lb.; soft soap, 10 ounces; water, 10 gallons. Dissolve the soda and potash in water separately, and the soap having been previously dissolved in hot water, mix it with the above, afterwards making up the quantity of water to 10 gallons. This preparation should be applied to the trees in the form of a fine spray, and the operator should wear leather gloves during its application. A calm dry day should always be selected for this important work. The chief point in its application is to ensure that every part of the tree has been wetted, but not sufficiently to cause drip from the twigs and branches. When the pruning and spraying are at an end, lightly break up with a garden fork the surface soil around each tree. Lime applied to plum and cherry trees will prove beneficial. No mulching should be laid on until the season is further advanced. Pelargoniums intended for bedding-out purposes at the end of May will require removal from their cutting boxes into 3-inch pots. Two parts loam, one leaf-mould, and one sand will form an ideal compost for potting, but ascertain that the compost is in a moderately dry condition before using it. When potted, stand the plants on the greenhouse stage, and when fairly well established, transfer to a cool frame. Sow Antirrhinums in boxes early this month, as they are plants that require a long season of growth. Ensure good drainage by the use of broken pots or other rough material placed in the bottom of the boxes. Next to these a layer of leaves, and fill up to within an inch of the top with a compost of soil, leaf-mould, and sand in equal parts. Make moderately firm, and finish off with a level surface. Sow the seeds thinly and cover lightly with fine soil. Water in with a rose can. To hasten germination stand the boxes in a warm greenhouse, but as soon as the seedlings appear remove to a more cool and airy position. For an early supply of Sweet Peas the seeds require to be sown in pots and grown under glass. Prepare a compost of loam, leaf-mould and sand, and pass the whole through a quarter-inch sieve. One crock in the bottom of each 3-inch pot will suffice for drainage. A little of the fibry material left over from the sieving of the compost should next be laid over the crock. Fill up each pot to within an inch of the rim with the prepared soil, pressing moderately firm with the fingers. Place one good seed in the centre and cover with half an inch of soil. A temperature of 55° should be maintained until the seedlings are well through.

M. D.

The Arboretum.

Tim pruning of trees, young and old, should be completed now as soon as possible, and shrubs which were not done last summer and autumn should be attended to at once. These will be chiefly late summer and autumn flowerers, such as *Cytisus capitatus*, *Coboliers*, autumn-flowering *Ceanothuses*, and any others which make their growth during spring and summer and flower in autumn. Many shrubs do not require a great deal of pruning every year, but benefit greatly from a thinning out of old shoots occasionally. Among others may be mentioned the various species of *Ribes*, of which there are several nice kinds in addition to the common flowering Currant itself, a very fine early spring-flowering shrub, *Ribes cereum*, with white flowers; *R. aureum* (yellow); *R. cruentum* (crimson); *R. Gordonianum* (red and yellow); *R. Menziesii* (red and white), and a few others, are pretty shrubs for the wider parts of the grounds, and although chiefly spring-flowering, do not require hard cutting back annually, so it is often convenient to thin out now, even at the loss of some flowers, rather than wait till after flowering, when there is more than enough to do. Pruning on the lines followed for fruiting gooseberries will suit them well. Many of the *Caraganas*, *Barberries*, *Escalonnias*, &c., may be thinned out similarly periodically, being careful, however, in the case of highly ornamental spring-flowering kinds, like *Berberis stenophylla* and *B. Darwinii* to leave them till after flowering. Among the Brambles (*Rubus*) there are several quite ornamental species and many worthless kinds, the latter, perhaps, predominating. Those with ornamental stems, like the so-called Whitewashed Bramble, *R. biflorus*, should be treated like raspberries, cutting out the old canes and leaving the strong young ones. In the case of the white caned sorts, it is advisable to do the pruning in autumn so as to display the colour of the young canes to the best advantage. Some, however, with less ornamental shoots, but which bear interesting fruits, may have the old canes taken out now. The most beautiful of all the *Rubi* is *R. deliciosus*, a spring flowerer, with large single white flowers, and it should be pruned after flowering.

Any of the wild *Roses* which are conspicuously beautiful early in the year may, if time permits, be treated like Brambles, and thinned out after flowering; the others, which flower later, may be thinned out now. Owners of woods and plantations might use the wild *Roses* and Brambles with good effect planted in groups on the outskirts and by the sides of roads and rides. When allowed freedom to grow, many of them are beautiful, and look more natural than when planted in the home grounds or garden, where they must perforce be restricted.

After all pruning is finished, shrub beds and borders should be lightly forked over. Half decayed leaves, rotten grass, and other decayed vegetation make an excellent dressing for shrubs, and take the place of the leaves which, for the sake of neatness, are generally raked off. On poor soils a dressing of farmyard manure is beneficial, but as this is not always available nowadays, care should be taken to have a large accumulation of decayed vegetable refuse for dressing beds and borders, as shrubs to do well must be cared for as much as herbaceous plants.

All roads and walks in the arboretum which have got out of repair should be attended to at once if possible, as they are now comparatively soft, but with the advent of drying winds will soon become hard and unworkable. Where the surface has become worn and uneven it should be broken with the pick, recrowned and levelled, burying any big stones which may have come to the surface. If possible a dressing of stones about the size of walnuts should be applied, and the whole then thoroughly rolled with a good heavy roller of the water ballast type. Walks designed for light traffic only may be treated similarly, but the stones may be finer, and a hand-roller thoroughly and frequently applied will generally be sufficient. Grass paths should be rolled after sweeping, and indeed all grass that is kept mown short should be frequently rolled before the machines are allowed on it at all.

The first three weeks of January have been comparatively mild and free from frost, consequently the earliest flowering shrubs have bloomed very well.

The winter sweet *Chimonanthus fragrans* gave lots of its sweet-scented flowers all through the month, and rarely has *Jasminum nudiflorum* shown such a wealth of bloom. Both of these are grown on walls for the protection of their early blossoms. *Hamelis mollis* and *H. arborea* bloomed well for several weeks, and the new *H. Japonica rubra* likewise. I confess to having had some doubts about the latter when first I saw it catalogued, but there is certainly a suffusion of red in the petals, and the calyx is of a deep reddish chocolate colour. Our plant is quite tiny, but a fair-sized bush should be attractive. *H. vernalis* has also flowered, but is less attractive than the others. *Parrotia persica*, an ally of the *Hamelis*, is now opening its curious flowers, composed of bunches of red stamens. This is a useful small tree for planting on lawns and in light soil: the leaves assume brilliant hues in autumn. *Rhododendron dauricum* has been magnificent, and for once in a while the flowers escaped destruction by frost. *Lonicera standishi* is now flowering profusely, the white sweet-scented flowers being most welcome so early in the year. *Cornus officinalis*, which is very similar to *C. Mas*, is opening its flowers: a large bush appearing quite yellow in the distance. *Prunus davidiana*, both the pink and white forms, is just coming into flower; and *P. microlepis* has been opening its flowers since Christmas, and has yet to reach the zenith of its beauty. Numerous forms of the Mediterranean Heath are giving colour about the grounds, and coax one to believe that spring is at hand; but, alas! experience warns us that many cold days must be endured ere the balmy breath of spring awakes to life the still quiescent flowers of spring and summer. B. Dublin.

Rhododendron parvifolium.

This is one of the early flowering set, and is interesting on that account. The habit of the shrub is not attractive, being sparse, with rather thin, slender branches bearing a few small leaves at the extremities. The small leaves are furnished with scales and the flowers are produced in clusters of four or five in January and February: they are of a rosy-purple colour, and attract attention appearing so early in the year. It is useful for the rock garden planted among dwarf Heaths and similar peat-loving plants.

Hints to Amateurs.

By R. M. POLLOCK.

HERBACEOUS and alpine plants that are pushing up soft young growths are very tempting to slugs, and some form of protection is necessary. A mixture of soot and lime scattered round the plants, or cinders, tobacco powder, or any of the advertised preventives, will to a certain extent ward off these enemies, but by far the most satisfactory method of destruction is that adopted by the evening garden prowler, armed with a lantern, a trowel and a bucket, who goes to the root of the trouble and looks carefully under the plants as well as on them, and who eventually digs a hole and buries the slugs with a few hand-fuls of common salt. There is a certain satisfaction in knowing that at any rate one lot of slugs have been removed entirely from further attacks. Unless the gardener is out early in the morning he will not catch very many, as they are wonderful at the game of hide and seek, and they love darkness better than light, and their deeds are surely evil.

Where seed of alpine and herbaceous plants was collected late last autumn, preparations may now be made to get this seed sown. If none was saved, some of such plants as the gardener is short of, or of which a new stock has to be raised, should be ordered at once. The herbaceous plants sown now will by the autumn be nice strong little plants, which will be able to stand being planted out in a nursery bed and left there during the winter. There is a tendency in purchasing seed to order far more than is required, and there is a still greater tendency to sow this seed too thickly. The idea presumably is that no seed should be left over, and that the more seed sown the more seedlings will result. This is not the case: when the sowing has to be done in a limited space, such as pots or in pans, and where the seedlings are so close that damp will set in, or they will be too weak and crowded to bear pricking out. A thin sowing resulting in a small number of strong healthy seedlings is far better. Also, it is often advisable to keep over what will make another sowing, in case of failure or accident, especially in the case of some plant about which little is known or which has not previously been raised from seed.

The value of a small unheated frame is often overlooked. A structure of this kind, which can be moved from a sunny corner into shade, and *vice versa*, is of the greatest help to the seed raiser at this time of year, and can be used with advantage all the year through. At the present time seeds of Pansies, Violas for summer flowering, also Pentstemons, Antirrhinums, alpines, herbaceous plants, and a first and early batch of annuals for the summer flowering, which can be pricked out direct into their permanent quarters, will more than fill the frame, and will give them just sufficient protection. In the summer and autumn it will be invaluable for striking cuttings, and later on the first batch of bulbs in pots can be given its protection and any treasure from the rock garden or border whose hardness is doubtful. It need never be empty, and is of far greater value in a small garden than an unheated greenhouse.

Shrubs on walls will all need looking to, and wall Roses, other than the Ramblers, may be cut

large, all last season, growth short and not good in the best. The plants will winter in the open, but during February, March, and April, and until the middle of May, they must be covered. Some will fruit and others not, but they fruit.

Some of the best plants are the 10 ft. growing up to 15 ft. high, but they do not look like flowers, which are small and delicate flowers in the year.

Winters are not so bad in Ireland, and with a little care, the plants can be kept suitable for winter in the open.

For garden and house, and Polyanthus, both are good. The latter are attractive and found in the garden, they flower.

There are many other kinds of Polyanthus, both of which are beautiful and have berries, and the flowers are small. All these may all still be found.

The ground where bulbs are pushing up may be forced over, and later on seeds of some of the growing plants may be scattered broadcast through the lines, and so cover the bare ground during next summer and early autumn. Look over all the spring bedding stuff that was planted out last autumn, and replace and secure such plants as Polyanthus, Wallflowers, Myosotis, Phloxes, Arises and others. Here the advantage of keeping back a few plants of each variety will be demonstrated, as a winter of high winds and storms, such as the last one has been, always leaves its mark, especially amongst the Wallflowers, and no good results can be expected from plants that have been swept round and round by the wind and have lost their hold in the ground.

Eupatorium Weinmannianum.

This, although a Mexican shrub, can be grown outside in certain parts of Ireland and in the south and west of England. A fine sunny autumn is essential to the proper development of the flower-heads which are produced in October. The flower-heads are white, produced in large corymbs, and are sweet-scented, which probably accounts for the attraction they possess for butterflies.

Mr. E. H. Walpole noticed last autumn at Mount Fisher a large number of "Red Admirals" busily engaged upon the bushes there.

As the flowers are produced on wood of the current season's growth, pruning should be done in spring, so that good growth may ensue during the summer. Where *E. Weinmanniana* cannot be relied on to flower outside it may be grown as a pot plant, and makes an admirable greenhouse subject for autumn flowering. Cuttings of the young growths taken in early summer, when 3-4 inches long, root readily in a cool house or frame kept close and shaded. When rooted they may be potted off singly, and when growing freely pinched to induce the lower buds to break into growth. During summer the plants may be plunged outside in a sunny position to ensure ripening of the growths. A shift into six-inch pots will be necessary when the first ones are fairly full of roots, and towards the end of summer weak liquid manure once a week is beneficial. Early in September move the plants into the greenhouse, where they will soon come into flower, and will make a nice show before the main batch of *Chrysanthemums* is open.

B.

Irish Gardeners' Society.

The Annual General Meeting of the Irish Gardeners' Association and Benevolent Society was held on 26th January, 1916, in the D. B. C. Rooms, 7 Lower Sackville Street, Dublin. Mr. William Fisher, President, occupied the chair, and there was a good attendance of members.

The annual report and statement of accounts for the year ending 31st December, 1915, remarked on the continued progress of the Society. The total surplus funds now invested amount to £706 7s. 6d. and the interest earned on same during the year amounts to £21 12s. 8d. The Committee, during the year, were able to invest another £100, which they put in War Loan Stock. The cash in hands and bank amounts to £56 18s. 6d. The number of new members enrolled during the year was fourteen. The best thanks of the Society are due and hereby tendered to Sir Frederick and Lady Moore for their kind invitation to visit the Royal Botanic Gardens, Glasnevin, in June, and for the very hospitable manner in which they were welcomed by Lady Moore. Since our last report a number of members of both sections have joined His Majesty's Forces, and are now serving on the Continent or in the various parts of the Kingdom, and the members at home will watch with anxiety their career in their new sphere, and earnestly pray that they may all come safely through the ordeal, and they shall be glad to welcome them back as members again on their return.

Mr. W. F. Gunn, J.P., in moving the adoption of the report, said that the Society was now in an exceptionally strong position. In the ordinary section they had made a profit of £79 18s. 6d., which was very satisfactory. They were deeply indebted to the members of the trade for their substantial subscriptions. They would also observe that the benefits to the members had been considerably increased. They had 27 members of the Society either serving at the front or in training, and that was very creditable, indeed.

The motion was seconded by Mr. James O'Toole and supported by Mr. William S. Hall and Mr. James Turner, and was unanimously adopted.

Formalin as a Spray against American Gooseberry Mildew.

B. PANTEN, of Kazimierz, Posen, reports the results of spraying with a 4 per cent. solution of 10 per cent. formalin against American gooseberry mildew (*Sphaerotheca mors-uvae*). The bushes were sprayed in early spring before the appearance of the leaves and again before flowering, taking care to wet all the wood and both leaf-surfaces.

By this method the lichens and mosses growing on the older bushes were effectively destroyed. During 1913 and 1914 the bushes sprayed were quite free from attack, whilst those in neighbouring plantations were very severely attacked. Bordeaux mixture had been tried for three years without success, as all the bushes had become attacked by the disease.—*Monthly Bulletin of Agricultural Intelligence and Plant Diseases*, July, 1915.

Panama Pacific Exhibition.

NOTABLE IRISH SUCCESS.

MESSRS. HUGH DICKSON, LTD., Royal Nurseries, Belfast, have received official intimation that they have been awarded the 1,000 dols. trophy at the Panama Exhibition for the best new rose not yet in commerce. This unique international award has been won under the most strenuous competition and after the most searching trial ever conducted at an international exhibition. The Exhibition authorities invited all the Rose hybridists of the world to send for trial the best of their seedlings, the plants to be grown in a specially prepared garden in the Exhibition grounds, and there grown for a year before the Exhibition opened, so that they would be thoroughly acclimatised and established before the test of judging was undertaken. The response was world-wide, and we are informed that practically every country in the world was represented by the best products of their hybridists. The method of judging was most exacting. Each variety grown under number only was judged every month of the period of the Exhibition by a group of the leading Rose growers of America, who awarded points to each Rose competing, the set of judges being different on each occasion. At the end of the test the total points were counted, with the result of a brilliant success for our Irish firm, who are to be heartily congratulated. The governors of the Exhibition reserve the right to name the new rose in commemoration of the great engineering feat which the Exhibition was to inaugurate, and Messrs. Dickson and the public generally will wait with patience to hear what name this famous Rose is to bear.—*The Irish Times*.

A Timely Hint on Sweet Pea Growing*

By GUNNER J. CUSSEN, R.F.A., Head Gardener to W. Verschoyle, Esq., J.P., Woodley, Dundrum.

THE first thing to do is make a sowing as soon as possible after this date. Collect all three-inch pots and place four seeds in each pot, chipping all dark seeds. The next thing is, do not buy all novelties, for very often these are not equal to the old varieties. Twelve of the best are:—King Manoel, Hercules, R. F. Felton, Marks Ley, Margret Atlee, Mrs. Cuthbertson, Constance Hinton, Paradise Crimson, Mrs. C. Breadmore, Paradise Carmine, Paradise Primrose, Mrs. R. Hallam, and one novelty—Jean Ireland.

Having sown the seed, place in a close frame until germination takes place, then throw off the lights altogether, using them only during heavy rain and frosty weather.

Trenching, if possible, ought to be done in November, and the deeper the trenching is done the finer and longer will the blooming season be. The Sweet Peas here treated in this way are in bloom still. The trenches ought to be at least three feet deep and three feet wide, with well rotted manure in the second spit and no manure of any kind in the first spit, only plenty of soot.

All the above are tremendous strong growers. Leave four shoots to each plant, and plant them at least one foot apart, and success will be yours.

* Unavoidably held over.

The Utilisation of Ferns in Carniola.

THE common bracken (*Pteris aquilina*) is very plentiful in Carniola, where it often dominates sunny slopes and is gathered in the autumn for litter. In damp places, ferns of the genera *Aspidium* and *Nephrodium* are very common, especially the male fern, from the roots of which filicine is prepared; these plants are, however, only collected to a limited extent. The gathering of another fern has developed into a real industry, greatly to the advantage of the owners of the wood, the gatherers and the trade. This fern (*Aspidium aculeatum* Sw., in its sub-species *lobatum* Sw. with 8 forms and *angulare* W. with numerous variations) is gathered in large quantities for decoration. Permission to cut it is given by the owners on payment of a farthing or more per acre. The ferns are collected by men, women and children from the end of October to April, according to the season: fronds are cut just above the roots and tied up in packets of 50; a thousand perfect fronds fetch 10d. or even 1s. 1d. in dry years, and one person can pick three or four thousand in a day. The agents, of whom there is a special society at Upper Laybach, store the ferns in cellars and despatch them to order, packed damp in cardboard boxes, to all parts of the world: the chief centres of consumption are Berlin, Paris, London, Constantinople and New York. Several million boxes are sent annually at the rate (without postage or packing expenses) of 1s. 9d. to 2s. 2d. per thousand, or 1s. 7d. per lb.—*Monthly Bulletin of Agricultural Intelligence and Plant Diseases*, July, 1915.

Saxifraga crassifolia.

THIS handsome broad-leaved Saxifrage has been flowering remarkably freely for some weeks in common with many other hardy plants, and is this year very early. It is a plant that can be put to many uses in gardens, and is equally at home on the rock garden or in the herbaceous border; also it seems indifferent to sun or shade, flourishing under either condition. Groups planted about the borders are very effective all winter with their large shining leaves, accompanied now by panicles of pink flowers. Planted freely about the less choice parts of the rock garden, it imparts a cheerful well-furnished appearance during the months when the other smaller plants, or those which die down, are less conspicuous. *S. crassifolia* is a native of Siberia, and has been in cultivation for one hundred and fifty years.

Iris sibirica Snow Queen.

IN our December issue this beautiful variety was illustrated, from a group growing in the gardens at Harristown House, Kildare, as *I. sibirica*, without reference to the variety. A correspondent has pointed out that in the variety Snow Queen the large beautiful white flowers are produced at or about the height of the leaves, and not well above them, as in the typical forms. Snow Queen itself is really a form of *I. sibirica orientalis* which some authorities are inclined to regard as a species. There is a blue counterpart of Snow Queen known as Blue King. Both have been frequently alluded to in this journal, and are really fine hardy plants for rich moist soil.

Orchids at Glasnevin.

IS the Royal Botanic Gardens, Glasnevin, a very comprehensive collection of Orchids has long been a prominent feature of the gardens, and many of the fine hybrids and varieties which have been produced by various raisers are included and make the orchid house at all times interesting and beautiful. About the middle of December the following were noted as prominent among others: *Stenoglossis*, *Helomatia*, *Calanthe*, *Ventilabium* and *Calanthe*, *Harrisii*, *Ophroglossum*, *Jasper*, *Dendrobium*, *Golden*, *Laeloathlyea*, *Thyone*, *Cattleya*, *Mrs. Sassoon*, *Laela*, *Anvers* in variety, *Ophroglossum*, *Piscaterra*, *Cynobidum*, *Tracyanum*, *Ophrodia*, *Chelsumis*, *Odentoda*, *Breadshawia*, *Dendrobium glaucum*, *Laelo*, *Cattleya*, *Prinzi*, *Ophroglossum crispum*, *Oncidium*, *Variatum*, *Rogersii*, *Cologetheya*, *Cypripedium*, *Bastoni*, *Bullock*, *Aureum*, *Marie*, *Oddity*, *Comanderum*, *Chief*, *Ma Belle*, *Brown*, *Schroder*, *Leemann*, *Leemann*, *Queen Alexandra*, *Leemann magnificum*, *Potter*, *Hebe*, *bispala*, *Peachcock*, *Chantini*, *Lindem*, *Laura*, *Kimball*, *Sandera*, *Brownii*, *crina*, *villosum auriferum*, *Pitcherianum*, *Willmott's*, *var.*, *Ormosum*, *grandiflorum*, *Venidens* and *Sir Rodvers Buller*.

The Mild Winter.

RARELY do we escape so long without severe frost, and surely never in February have so many plants been so advanced as they are now. Alpines, trees, shrubs and herbaceous plants are hurrying along. Alas, it may be too fast! How often has March held the garden in an icy grip, and even April has entered with tears of hail and a cold east wind. Even as I write there seems a change, the sky is clearer and there is a sting in the air. It will do less damage now than later, for though we may mourn a few early flowers others will follow, but the fast swelling buds of pears, peaches and apricots will not come again till next year, and one good frost after they are open destroys all hope of fruit for this summer. Where the trees are on walls, of course, precautions can be taken, and a few folds of fish netting or tiffany hung over the trees at night and removed in the morning will defeat Jack Frost.

The same thing on a smaller scale may be done with small shrubs, alpine or herbaceous plants. A few stakes around the plant and a square of tiffany or even brown paper or newspaper attached thereto will save many a gem from disaster.

It is remarkable how many flowers are out just now that we ordinarily associate with a month hence. I had the privilege of a few moments in the large rock garden at Curragh Grange the other day, and noticed under the pines a fine lot of the old-fashioned double White Primrose not so often now seen in good form. Near by, too, a fine clump of Iris reticulata was remarkable. Many of the Kabschia Saxifragas were in flower and some quite over. What a fine shrub *Rosa sericea pterantha* is for planting on a knoll where it must be dry in summer! Despite this the growths were long and vigorous, and the red spines immense and looking very attractive. *Erica carnea*, too, was coming out well and should look very charming in a week or two. It has been planted in quantity under some young pines—a fitting association, which should improve with time.

A friend, writing from the West of Ireland, says that his Roses are as forward as they often are in April, and it certainly is astonishing as one moves about to see the growth on Honeysuckles, Hypericums and many other things, as green as a thorn hedge in April.

WANDERER.

Journal of the Board of Agriculture.

THE January number contains among other articles a report on Plant Diseases in England and Wales for 1911-1915, and also the announcement that the reports of the Horticultural Branch are suspended for the present. This is regrettable, but possibly inevitable, under present conditions, yet we are inclined to think that even yet the Government does not appreciate the importance of Horticulture. An article on the Improvement of Allotments is useful, and should be of value to councils and other bodies concerned, and the statement that urban allotments are generally better cultivated than rural ones will give food for reflection. The cause of this difference is largely due, as the investigator discovered, to the higher wages and shorter hours enjoyed by the urban worker compared with the appallingly long hours and contemptible wages hitherto considered good enough for rural workmen.

Myosotis Azorica.

THIS delightful little Forget-me-Not from the Azores is one of the best of plants for autumn flowering. Although hardly hardy enough to withstand our winters, it is so easily raised from seeds, which it produces freely, that there should be no difficulty in having a nice stock of plants. Seeds sown now in a cold frame and picked out when large enough will flower next autumn. The seedlings may be pricked out where they are to flower, or may be grown on in boxes or in some spare piece of ground until larger, and transferred to the rock garden at a later date. A moist position is best, such as in a small bog or a pocket at the base of the rockery. The flowers are a dark purple-blue, and the total height of the plant in flower is not more than six inches or thereabout.

Leucojum carpaticum Vagneri.

THIS beautiful early flowering Snowdrop-like plant has been flowering in the Botanic Gardens at Glasnevin since about the middle of January. In many respects it is similar as to *L. carpaticum*, which is also a very charming flowerer, and considered a variety of *L. vernum*. In the form *Vagneri*, however, the scape on which the flowers are borne is considerably taller than that of *L. carpaticum*, and the flowers are open a week or so in advance of the latter variety. *L. vernum* and all its varieties are worthy the attention of hardy plant lovers. The beautiful white flowers with green-tipped segments are very attractive appearing so early in the year. A moist position in the rock garden would suit them admirably, though they are equally at home in a well cultivated herbaceous border. *Leucojum* belongs to the *Amaryllidaceae* family, to which also belong the Snowdrop and Daffodil.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener to Lord Carew, Castleborough Gardens, Co. Wexford.

THE work in the flower garden during this month will be taken up in cleaning up all arrears of the winter's work and preparing for the spring. Planting of trees of the deciduous section and flowering shrubs should be finished up this month. Conifers will be better planted at the middle or end of March, or even in April, with some species. Lawns should be rolled on all possible occasions, especially tennis or croquet lawns. Where good solid walks are found a rolling will help them, and several rollings after the winter's frost and rains will be of advantage to them and their owners. All gaps in the herbaceous border should be planted up without delay. Some people lift roots of the summer-flowering perennial Phloxes and make root cuttings, planting out clumps in the border in May. This is a good plan if one does not lose enthusiasm; if done well, and carefully grown until planting time in May, the results are splendid; but if grown indifferently the owner of the garden had better stick to the old plan of division of the roots. The newer Verbascums are wonderful examples of the florist's art, and when young plants are propagated every two or three years they give glorious masses of bloom in June and July. The propagation is effected by root cutting as one propagates the common seakale. The pieces of root are bedded in sand all the winter, and planted out in April when the buds commence to show on the top of the severed roots. *Verbascum Wildenovii* (chocolate), *densiflorum* (yellow), *Ivanhoe* (buff), and *Caledonia* (chamois) are worthy of a place in any garden. The newer varieties of Delphiniums are also worthy of attention if the garden is in good heart, deeply tilled, and well manured; if not, do not waste your money on good Delphiniums, because cheaper ones will be as bad or as good. But the best Delphiniums grown well are a sight for the gods.

The Michaelmas Daisies or perennial Asters must not be overlooked. The varieties are legion, and all are good; but personal taste will be the best guide when there are so many to choose from. The *Kniphofias* too are in much more variety than is usually known. When the garden was practically bare in early November two large beds of *Kniphofia grandis* were its brightest spot, and more admired than a dozen of the best varieties early in the autumn; but it has one fault: an early frost, if very severe, say 10°, cuts it down just as the blooms are showing colour. My experience has been that in five years I have had excellent results four times. *Kniphofia Lemon Queen* is an early autumn flower, and its telling colour makes it valuable. *Kniphofia Goldelse* and *Nelsonii* are dwarf varieties with miniature flowers.

Many useful subjects suggest themselves, but advantage should be taken to add something new to the herbaceous border every year if convenient; if you get something you retain once in two years, it will be a gain.

Seeds of East Lothian Stocks and the various varieties of *Antirrhinums* should be sown this month in a temperature of about 55°. A warm greenhouse is just nice for them. Sow thin and as evenly as possible, and immediately the seedlings appear put as close to the glass as possible, and grow slowly, without coddling, and

when big enough to handle transplant the stocks into deep boxes about 4 inches apart. Be sure the boxes are at least 5 inches deep, for if not your stocks will not be much good. They suffer in the last month before planting if they have not got a deep root run and plenty to feed on.

Sow seeds of all the hardy *Primulas* this month for good results, and they can be put into the same warm greenhouse with the Stocks and *Antirrhinums*. *Primula capitata*, grown annually from seed, and flowered the following year after sowing, is at its best: treated as a biennial it flowers with me from June to the autumn without a break. *Primula Beesiana pulverulenta*, *Poisonii Cockburniana*, and the Blue Primrose *Polyanthus*, and all the free-flowering *Primula* family, sown in February, grown cool as soon as they have germinated, are ready to plant out in garden quarters in May.

Dahlias should be put on a mild hot bed to get early cuttings. If cuttings of tender bedding plants are needed, stock plants of these should be brought into more warmth, and as soon as they commence to grow, cuttings, taken off, and in most cases put into trays of sandy soil as thick as they can be got in, for about a fortnight, when they will be rooted. But if this plan is adopted, do not forget to box them again immediately they are rooted.

Geraniums where grown can be increased by taking of the top off the autumn-rooted plants and rooting the cuttings in a warm greenhouse. When the boxes of autumn-rooted plants begin to grow put them singly in pots, or tie some soil round them with moss and put them back in the propagating boxes, as most convenient. Examine stocks of *Begonia* tubers for dry rot, and if not already done, bury them in sand to keep them plump. Clean tubers of *Gladioli* and have them ready for planting next month. Keep a look out for early bulbs on the rock garden or the birds or rats may do harm.

Iris Vartanii should soon be showing colour. *Iris histrio* and *I. reticulata* close after. Many small bulbs will be pushing up their heads every day from now on, and a vigilant eye will save many failures. Climbers and various flowering shrubs attached to buildings and walls will require attention, as the winter storms will have made many of them loose. All beds of *Carnations* and spring bulbs will also be improved by having the soil made firm around them.

Carnations of the border kinds can be planted at the end of the month, where they have been wintered in pots or autumn planting was not suitable or convenient.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

LOGANBERRY.—This most prolific berry will succeed in almost any deeply trenched soil. The present is a good time to plant, and the distance apart should be at least 12 feet. They require the support of a fence or similar structure; and for covering rustic work of any kind they will combine utility with ornament. Newly planted canes should be cut back to within a foot of the ground, and the resultant growths trained in the position in which they will fruit the following year. Their subsequent treatment simply consists of cutting out the old canes after fruiting and tying in the growths of the current year in

the *Thorn*. The fruit is a pleasant for food and for drink. They battle with, and also make a good battle with, the *blackberry*.

FRUITING.—In late varieties fruiting canes were cut at the end of the year, but, as yet, all that remain to be done is to water them out the weakest of the new canes and to cut the ones left to them away at the end of the year. The work for the rest of the year is to cut out a month later, bearing in mind that anything thinner than a lead pencil will not produce fruiting shoots.

The raspberry is a surface-rooting subject, therefore the bed should be only very lightly forked up to avoid weeds to be weeded, after which a good touch of long manure should be applied. The canes of autumn fruiting raspberries should be cut to the ground in spring, thus inducing strong growth on which the fruits are borne the coming year.

GOOSEBERRIES AND CURRANTS. The pruning of these, having been completed, a good dressing of manure should be forked in around the bushes, unless manure was applied last year, in which case a good dressing of lime will suffice on all except very light soils.

In these days of enforced economy in organic manure's good results will accrue from following a three years' system of manuring. My plan is to apply stable manure the first year, an application of lime the following year, and the third year has a mixture consisting of two parts superphosphate to one part each of sulphate of potash and sulphate of ammonia, at about 3 ozs. to the square yard.

APRICOTS. Assuming that the young shoots were attended to during last summer, there will be little need for the use of the knife on the trees now, although if spurs have become over-crowded, the longest of them can be removed now, and any young shoots that were left to replace worn out branches can now be secured in their proper positions. Examine all ties and replace any not likely to last the year, and any that are likely to become too tight. This last is most important, as the damage is often not visible until the leaves fall again, and perhaps valuable branches have been ruined. Remove all suckers from under the trees, and lightly fork the surface soil, but do not apply manure until the trees are carrying a crop of fruit. By the end of the month arrangements should be made for protecting the trees from frost when in flower. A canvas cover that can be removed in the daytime is the best; such a cover will last for years with proper care, and will well repay its original cost.

SPRAYING. This is the most important operation of the month, after pruning, and advantage should be taken of every suitable day for the work. An absence of wind is essential, but a little frost on the trees will not matter. Once every second year is often enough to apply a caustic alkali spray. In alternate seasons a paraffin emulsion could be used with advantage. When spraying with caustic alkali the operator should wear rubber gloves and an old suit, as the fluid will take the skin off the hands and the colour out of clothes.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

ARRANGE on a plan how the garden has to be planted with vegetables during the season. Where there has only been time to dig the ground trenches should be prepared for peas. Measure

the various plots, mark the space where you intend sowing the peas, take out the soil to the depth of 11 inches, and manure well; dig in the manure, and fill the trench with the soil that has been removed. Pea lines can be made at a distance to suit the quantity grown.

PEAS. Put in the second sowing of early peas in a sheltered part of the garden. The *Marchioness* or *Crabtree* are two good varieties. The peas sown last month will require attention. As the young growths appear sprinkle soil over them to ward off slugs, and protect with branches from the cold winds.

CABBAGE. Look to the autumn planted cabbage; fill up all blanks, and hoe between the lines to loosen the surface. When the plants start into growth give them a light dressing of nitrate of soda and a second dressing three weeks later.

ONIONS, &c. When the weather is suitable transplant autumn sown onions. Potato onions and shallots should be planted at the first opportunity. Look to the onions in boxes, and when the seedlings are well forward remove to a cooler house near the roof-glass.

SPINACH. Make a sowing of *Victoria* spinach in the middle of the month on a warm border. Attend to the autumn sown spinach, hoe between the lines, and give a dressing of nitrate of soda. Spinach is always in demand in the early spring.

PARSLEY.—Any time during this month sow some seed in a box and place in heat to germinate. When the seedlings are well advanced remove to a cooler house and harden off. Plant out the seedlings 9 inches apart about the first week in April.

TOMATOES.—Sow the first early tomatoes as soon as convenient. *Sunrise* and *Perfection* are two good varieties. When the seedlings are fit to handle pot off into 3-in. pots; repot into 6-in. when required. Always bring the seedlings near the roof-glass, and let them have plenty of light. A temperature of 50-55° is warm enough for seedlings.

BROAD BEANS.—A sowing of a long-podded variety, such as *Exhibition Long Pod*, may be made early this month.

PREFECT BEANS.—Beans sown last month will require a top-dressing of rich loam. Place a few twigs in the pots to keep the shoots upright. Make a sowing every fortnight to keep up the supply. Syringe the plants daily to ward off red spider. When the plants start to pod feed once or twice a week with diluted liquid manure.

POTATOES. The potatoes planted in pots last month will be through the soil. Remove the pots to a position near the glass, and occasionally syringe. Give plenty of ventilation, but do not expose to cold draughts. Before the tubers in the pit frames are too far advanced remove any seedlings of the Brassica family that have been sown there. Place tubers in shallow boxes to sprout with the view of planting out in the open in March. Plant early potatoes about the end of the month on a border facing west. Potatoes planted on a border in that position escapes the harm done by the early morning sun after one of our spring frosts.

CALIFLOWERS.—If early cauliflower has not been sown, as advised last month, sow early this month in boxes. *Magnum Bonum* and *Early Snowball* are two good varieties. Sow thinly, and place the boxes in a cool house. When the seedlings are fit to handle transplant into a cold frame.

If Brussels sprouts are required early in the season the above treatment will be found suitable for an early crop.

LEeks.—Make a sowing of leeks in a box, and place in heat; when fit transplant into boxes, and give the same treatment as advised with onions.

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ARBORICULTURE IN IRELAND

EDITOR—J. W. BESANT.

Pergolas.

THIS subject is somewhat difficult to write about, there being many different opinions expressed by people of high repute in the garden world. Some quite approve; others are dead against. One feels rather inclined to agree with both after one has seen pergolas of many classes

in various parts of the country. Occasionally, but not too often, one comes on a very suitable structure or good site for such, and again one sees a so-called pergola constructed in quite a wonderfully intricate manner as regards appearance and in quite an impossible situation as regards suitability for growth



Photo by]

H. D. M. Barton.

PERGOLA AT THE BUSH, ANTRIM, THE RESIDENCE OF H. D. M. BARTON, ESQ.—THE GOLDEN HOP IN THE FOREGROUND.

of the various climbers planted on it. A pergola ought to lead from the house to, say, a rose garden, summer-house or flower garden, main gate, for through the latter, should it be of iron, a probable glimpse of brilliant colour at times gives much pleasure to the eye.

Pergolas must be made very strong all over, as they have considerable weight to carry once the climbers begin to cover, and particular attention must be given to the bracing together

of the cross-pieces of wood and the longitudinal pieces from pillar to pillar. These pieces should be of larch or oak, plainly and strongly fixed (I find the 6-inch wire nail very useful in this work). The cross-pieces should not be laid too closely, they can be added to later on when the climbers

grow and require further support. I do not care for any other additions in the way of side trellising, &c., to the pillars.

A pergola should be from 8 to 10 feet wide, the pillars being placed 8 feet apart and from 8 to 10 feet high; a fair length for a pergola is about 75 feet, but this, of course, varies according to circumstances.

The pathways underneath can be of gravel, grass (kept very well mown), or flagged, the appearance of this latter class of pathway being much added to should the ground slope from end to end and so enable a shallow step to be made here and there at intervals. The flags (of all variety of shapes) should be set in sandy loam, the divisions being from 1½ to 2 inches wide, so that low-growing rock plants, &c., can be grown amongst them. The pillars, if of

larch or oak, having had the bark removed for at least 2 feet, and that portion well coated with a preservative (carbolineum is about the best) should be firmly fixed in the ground. Should occasion arise where one is unable to procure stout larch or oak for pillars, one can place the thinner pieces, alternately in twos and threes, the former side by side, the latter in a triangle, each about one foot apart, and the cross-pieces on top the same; the effect of this is good.

Brick and stone pillars braced together with oak or chestnut cross-pieces make fine pergolas, but it is difficult to find the house and garden to suit this class, to say nothing of the cost of same, which is heavy; at least this is my experience in Ireland.

There is one thing in connection with the construction of pergolas with which I would have nothing to do, and that is any form of wire or metal used as either cross-pieces or pillars, for one never gets what I consider a proper result from anything planted on them.

The following climbers I find do well on most pergolas: viz., *Roses*, say Climbing *Caroline Testout*, *Capt. Hayward*, and any of this class, most of the robust *Wichuriana* variety, the *Moschata* (*Brunonis*), *Moschata grandiflora*, both very fragrant, *Cramoisi* Climbing (deep crimson), *Una* (white), and many others, all do well. *Clematis*.—A very useful adjunct, giving bloom as they do at different periods of the late spring, summer and autumn. *Clematis cerulea odorata* (a special favourite of mine, though, curiously enough, rarely found in gardens) being one of the best summer bloomers, blue, small flowers, very fragrant, and a good grower. For the beginning or end pillars of a pergola, one might try planting a standard *Laburnum* on each side, training the branches over the centre: the blooms will then hang down, the effect resembling the growth of *Wistaria*. If standard trees of "*Laburnum autumnalis*" can be procured, bloom in both spring and autumn is assured.

One cannot well on a large pergola leave out *Polygonum Baldschuanicum*, the effect in full bloom being very fine, especially if planted at either end. Then one has *Passion flowers*, *Abutilons*, *Forsythias*, *Honeysuckles* of various lovely colours, and all very fragrant (especially *L. gigantea superba*, with its long terminal panicles of yellow flowers), *Solanum crispum* and *Jasminoides*; with this latter I always plant *Clematis jackmanii*, thus getting purple and white bloom at same time. The *Jessamines* and *Cianthus* (for stone pillars).

Muchlenbeckias.—The many lovely autumn coloured vines. *Wistarias*.—About the most

difficult subject to deal with, owing to the very long time one must wait before any great move towards spreading and flowering takes place. There is nothing more lovely than a well-grown *Wistaria* climbing over arch or pergola, but any I ever saw growing well were plants of a good age.

There are other good climbers I could mention should space permit, and will now close these notes by saying that the great object to have in view when planting a pergola is to select climbers which will give you bloom or distinct colour of foliage, &c., during as many months of the year as possible.

All plants on a pergola require a certain amount of attention, especially the *Roses*, from which the old wood should at times be removed. *Clematis* I rarely touch, except to cut away dead wood, &c.

RICHARD M.M. SMYTH, F.R.H.S.

Mount Henry, Dalkey, Co. Dublin.

Gladioli.

THE immense strides made in the production of new and improved varieties have made the *Gladiolus* one of the most popular flowers of late summer and autumn. The colours are now so varied and beautiful and the shape of the flower so much improved that it is indeed hard to conceive any flower more beautiful or more useful for gardens of all sizes. The ease, too, with which the *Gladiolus* can be grown renders it remarkably suitable for the amateur and owner of a small garden who has to do his own gardening in his spare time. Varieties are now legion, all of them charming, so that practically every individual taste can be satisfied.

While conscious of the fine effect of large plantings of one colour in our larger gardens and public parks, it is none the less desirable to emphasise the value of two or three corms of different varieties to the small grower who wishes to enjoy as much variety as possible, and has to grow other things as well as *Gladioli*. This is just where the *Gladiolus* proves its value, for it flourishes perfectly planted among hardy herbaceous or annual flowers in *Rose beds* or among *Peonies*, as shown in the illustration, and also among dwarf shrubs.

TIME TO PLANT.—It is quite time enough to plant the corms towards the end of March and early in April. Very little advantage, if any, is gained by planting earlier, but actual harm may result from the cold and often wet soil destroying the young roots as they push forth from the base of the corm. By the end of the month the soil is usually drier and warmer, and growth

proceeds steadily and without interruption till the flowers appear.

CULTIVATION.—Any soil that is in good condition and has been growing other plants satisfactorily will do equally well for Gladioli, but they do not flourish in poor dry soil. Any ground intended for Gladioli which has not been recently cultivated should be deeply dug at least a month before planting time and left exposed to the ameliorating influence of sun, air and rain. Fresh manure is not advisable in contact with the corms, and if the soil is poor and dry an endeavour must be made to improve it

Planting among other flowers or shrubs may be done on the group system, adding manure only if the soil is poor and dry, but if in good condition, as judged by the other plants growing in it, then it will be sufficient to open the holes five or six inches deep, placing a layer of sand in the bottom on which to place the corms, and then fill up the hole.

STAKING.—Modern varieties develop very long spikes with large flowers borne close together, so that they are liable to become top heavy when the spike is at its fullest development. Some form of support, therefore, is necessary to pre-

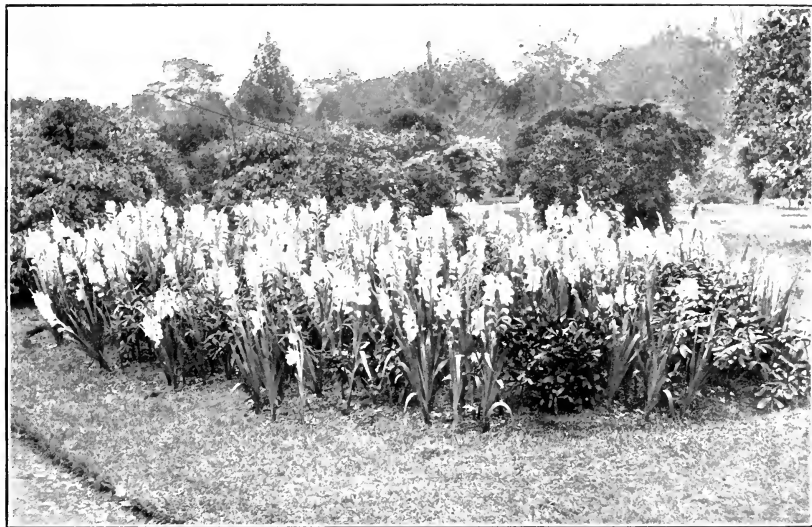


Photo by

[S. Rose.]

GLADIOLUS "AMERICA" IN A PEONY BED IN THE ROYAL BOTANIC GARDENS, GLASNEVIN.

by the addition of decayed leaves or other vegetation. Just before planting, the ground should be lightly pointed over, tramped firmly, and raked level. If the ground is poor it is a good plan to plant the corms in groups, say, of three, five, eight or more as the case may be, and open a hole sufficiently wide to allow six inches between the corms. If the hole is made nine inches deep a layer of rotten manure may be placed in the bottom and covered with three inches of soil, and if possible a little sand. On this place the corms and cover with four or five inches of soil, pressing it down fairly firmly. The manure if well decayed will not hurt the roots by the time they have penetrated the soil, and it tends to keep the soil above it moist—an essential condition for satisfactory growth.

vent them being beaten down by wind and rain. Any light stick long enough to penetrate the ground six inches or so and to reach to about the lowest flowers is suitable, and the ties should be just sufficiently tight to maintain the spike in position without cutting the stem.

TREATMENT AFTER FLOWERING.—As soon as the last flower is withered the spike should be cut off where it emerges from the leaves, but on no account remove any leaves till they are turning brown, when the corms should be dug up and laid in a cool dry shed or outhouse until the stems can be removed easily without injuring the corm. When the stems and leaves have been removed, the corms may be stored away—cool, dry and safe from frost—till planting time the following spring.

VARIETIES. As stated at the beginning of these notes, there is now an immense selection of named varieties, but for those who want fine flowers in mixed colours at cheap rates nothing better can be recommended than the following race, as they are called:

Gladiolus Childsii. In these the habit is bold and vigorous, and the colours range through bluish, purple, scarlet and white, with various intermediate shades. 1s. 6d. to 2s. per dozen.

G. gandavensis. This is a very old race, and still one of the best, comprising some of the most beautiful shades of yellow and also white, and as cheap as the last named.

Gladiolus Lemoinei. This is a very charming race, in which is included some of the finest blue forms and also beautifully blotched varieties.

G. nanceianus. Another fine race of dwarfier habit with wide open flowers, and including some of the most lovely varieties with white throats. Good ones of this and *G. gandavensis* can be procured for 1s. 6d. or 2s. per dozen.

Gladiolus Groff's Hybrids. This race includes many of the very finest varieties in existence, and comprises practically all shades of colour. They can be purchased separately or in mixed colours.

A few good named varieties from various races are *Europa*, *Lily Lehman*, and *Peace* (white), *America* (see illustration), *Hollandia* and *Pink Beauty* (pink), *Faust* (crimson), *Baron Hulot* (blue), *Golden West* and *Princeps* (scarlet), *Annie Wigman*, *Niagara* and *Swabia* (yellow). These are but a few that have come under the writer's observation, but any of the nurserymen or bulb merchants advertising in **IRISH GARDENING** can supply many others.

In conclusion, I would like to emphasise the ease with which Gladioli can be grown, and their consequent value to the amateur. B.

Notes on Sweet Peas.

DURING the present great war crisis many enthusiasts will no doubt find it a trying time growing Sweet Peas on the exhibition system, and certainly the shortage of labour is not conducive to it, but I do not see any reason why the Queen of Annuals should be dispensed with for the decoration of the garden or for cutting.

No annual in my estimation gives more flowers over a longer period and so well repays the care and attention given if the seed pods are kept cut off.

Seed sowing should take place in the autumn, but very good results are obtained from spring sowing.

Sow at once in small pots, or the cardboard seed raisers, which ever is preferred: one seed to a small pot or five to a 5 inch pot, using a compost of turfy loam and leaf soil, not too light or dry. I find it very satisfactory to sow in boxes 4 or 5 inches deep and sow the seed an inch or so apart, pressing the soil fairly firm in the boxes. Soak the dark seeds, which are usually very hard, for twelve hours in water before sowing: I find a lot of seed, if foreign grown, requires this treatment. The boxes may then be placed in a temperate position, keeping them covered over for about ten or fourteen days, when germination will commence at this time of year.

As soon as they show the rough leaf keep them as cool and as near the light as possible to induce sturdy growth. Seeds sown in boxes do not usually require watering until the growths appear.

Planting outside will be the order of the day the end of this month and next. The ground should have been prepared in the autumn, as by so doing Sweet Peas can be grown on the same ground three or four years in succession. Let frost pulverise the soil. They will grow well in any good garden soil that has been deeply trenched and well manured, but remember the roots spread out and do not only keep to prepared trenches: what is called Rose soil, with the addition of plenty of lime, will suit them splendidly.

When planting out of boxes, where, perhaps, the plants have been grown rather thickly and cannot be raised with a ball, shake all the loose soil from them, and, spreading the roots well out, press the soil firmly around them. I find it a very good plan, especially on light soils, to prepare a mixture of clay and cow manure together to the consistency of putty and dip the roots in before planting: it will be found that the plants will start away without hardly any check.

Staking should be done as soon as possible after planting out, and if grown in clumps or rows it will be found that they must be staked firmly to resist the strong winds. If rows are favoured they should run north to south. A large meshed wire netting—what I think is termed sheep netting—is very useful, placing stakes about 10 feet apart and tying the netting firmly to them: the haulm will cling well to this without any other aid.

For columns or clumps I strongly advise the use of *Simpliciter* rot-proof cord netting: if neatness is required this is hard to beat. Tops of small larch have a very decorative effect with the arch of twiggly sticks to help the Peas to ramble over them.

Well-grown clumps are really most decorative for the garden, and judiciously placed they will form screens for unsightly objects, and also in the formation of colour schemes they are most useful, and should be more widely adopted than they are.

If a large quantity of bloom is required for house and table decoration, rows are by far the best mode of culture. Very often large blooms with good stems are wanted, and, personally, I think one good spike is worth a large bunch of more inferior blooms; they should be planted about a foot apart, and well disbudded. You cannot grow flowers with long stems suitable for large vases unless you disbud freely.

Streak disease, which has been rather prevalent of late years in some parts, though put down to over-manuring, is certainly not from that cause, and I do not think there is a known cure. Syringing young plants with a solution of Permanganate of Potash, diluted to a rose colour, is a very good preventive or check.

In connection with growing Sweet Peas in clumps, some varieties are more suitable for this purpose than others; weak growers should be avoided, and many orange and salmon varieties fade badly in the sun. Twelve really good decorative sorts are—Maud Holmes, crimson; Constance Hinton, white; Illuminator, cerise; Margaret Atlee, cream-pink; Fiery Cross,

cerise-orange; Mrs. Cuthbertson, pink bicolor; Frilled Pink, pale pink; Blue Picotee, picotee edged; Royal Purple, purple; Lavender George Herbert, lavender; Mrs. H. J. Damerum, cream; and Nubian, chocolate maroon.

Colours to suit all tastes for cutting will be found in the following selection of eighteen varieties:—

Marks Tex, dark bicolor; King Manoel, maroon; Hercules, pink; Constance Hinton, white; King Mauve, mauve; Austin Frederick, lavender; Royal Purple, purple; Mrs. H. J. Damerum, cream; Sincerity, cerise; Scarlet Emperor, scarlet; Robert Sydenham, salmon (this variety should be grown in partial shade); Rosabelle, rose; Maud Holmes, crimson; The President, orange scarlet; Mrs. W. J. Unwin, red flake; Margaret Atlee, cream-pink; Rowena, pink bicolor; Frilled Pink, pale pink. The above varieties will be found to be the

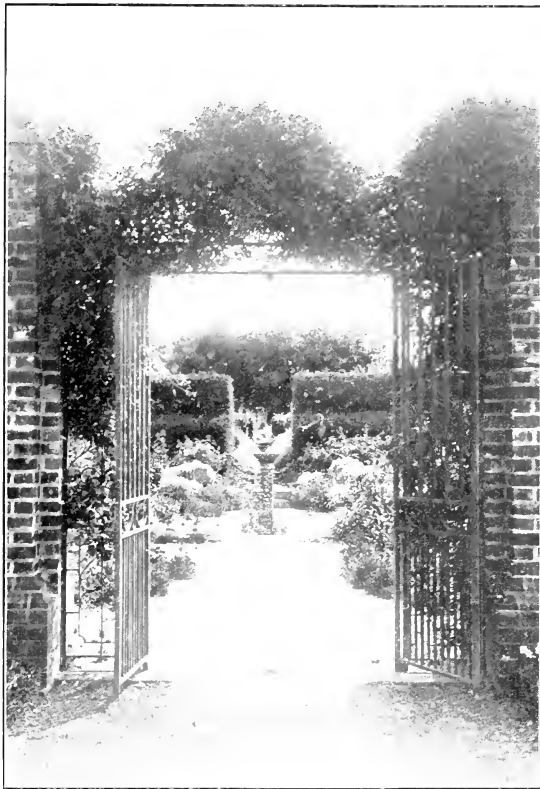
best of their colours and also for exhibition.

WILLIAM H. LEE.

Powercourt Gardens.

Rhododendron Davidii.

THIS new Chinese species has been flowering very well lately, and is well worth including where Rhododendrons are admired. The flowers are produced in clusters of seven or eight, are of a light pink colour, paler in the throat, and spotted with a darker shade above.



A PRETTY GATEWAY IN THE GARDENS AT CURRAGH GRANGE.—THE ROCK GARDEN IS BEYOND THE TREES IN THE DISTANCE.

The Rose Garden

A FEW NOTES ON PRUNING

MOST inexperienced Rose growers, after a couple of seasons of irregular and haphazard attention to their plants, are too apt to lay the blame of the poor result of their efforts to the destructive tendencies of the many pests with which they have come to be familiar. Of course mildew and greenfly and the various other enemies take full toll when unchecked, and reduce both quantity and quality of blooms to least possible dimensions. But the amateur at Rose culture has more to thank injudicious pruning for the poor success that crowns his work.

At the outset the principle of pruning should be thoroughly understood. The main object of pruning of all plants is the conservation of energy. Due proportion between the growth both of plant and root must be preserved; and it is only natural that if the upward development is gained at the expense of the due growth of the root, disaster is the only result to be expected.

In Rose growing in particular, where so much bloom is required for the size, too much care could not be taken to have the roots in the best position for their future welfare, and here artificial pruning assists materially. Even with the most favourable circumstances the roots of newly planted Roses take a full year to secure a hold on the ground and put out fresh rootlets to collect and store the sustenance for their advancement. Therefore it can be plainly seen if the growth of plants is gained irregularly it will not be a lasting one, such as will be of use in producing flowers worthy of the name.

The first pruning of Roses is generally the most important, and show permanent results. Whether the planting has taken place in the autumn or spring the dwarf Roses should be ruthlessly cut down to three buds from the stock. This will usually be at the height of about four inches from the ground. All Climbing varieties should be likewise shortened to about a foot. Frequently the bushes sent out by the nurseries have a number of stems which appear so fresh and well ripened that it seems hard to cut them away. Still the harsh method of pruning is eventually the wiser. Two or, in exceptional cases, where the plant is well grown, three stems are enough to retain after cutting. New growths will quickly spring from the base and form healthy wood productive of much bloom. When too many shortened branches are retained some are bound to die back and

become unsightly stubs, or else send out short, useless twiggy growth of no possible use. Cut behind and upwards in a slope so that the knife blade appears just above the bud retained, and this bud should always be facing out from the centre of the plant. One should endeavour to visualise the Rose tree as it will be in the middle of the growing season, and the pruning must be directed to secure a shapely result. No long snags of wood are to be left above the bud. This portion is bound to die back, and often affords welcome shelter to insects.

Pruning of Roses other than newly planted ones has a different object in view. It is to secure a yearly succession of new wood which, being ripened during the summer, will continue the existence of the plant in the healthiest possible condition. Much depends on the nature of the particular Rose. Those of a very vigorous type should be allowed to form a good bush, and, with proper care, will give the maximum amount of bloom. All thin, straggling growth should be removed completely, and the longer shoots shortened by a third. The danger in growing Roses of this type is to retain too many of the lateral shoots. These are apt to form a hopeless tangle once growth starts; the buds get injured by rubbing, and much of the wood is too crowded to become thoroughly ripened. Moderate pruning is the best for this type; and if this system does not ensure the throwing up of strong young shoots from the base, the plant should be cut hard back every three years or so.

Once the main principles of the art of pruning are understood, close attention should be paid to the different habits of the various types, and even to the different plants of the same variety. And in this respect experience is the best teacher.

It is not unusual for a Hybrid Perpetual Rose or a Hybrid Tea, after pruning, to throw up a single shoot without much lateral growth. When the soft unripened portion of this is cut away, side shoots appear, forming a bushy head, and a small Standard Rose is gained. Here the flowers will be on a more convenient level for inspection, and the whole appearance will be particularly pleasing.

Climbing Roses of the Wichuraiana class, such as Dorothy Perkins, Lady Gay, and American Pillar, and the Multifloras—viz., Crimson Rambler, Fairy, Aglaia and Mrs. F. W. Flight, &c., will need no further care than the removal of any dead wood, careful thinning of unnecessary growth, and shortening the tops of growing branches. The Hybrid Austrian Briars, Rayon d'Or, Juliet, Beauté de Lyon, Soleil d'Or, Madame Edouard Herriot, Muriel

Dickson (New 1915), after the first year, require very little pruning. It will be sufficient to cut the tips of the strong shoots and to remove any weak laterals. These Roses, as well as some of the Pernetiana class, like Lyon and Willowmere, show a tendency to die back to the stock. This may be often avoided by sparing the knife. Many of the Noisette class such as W. A. Richardson and Bouquet d'Or, especially when growing on a wall, have the bad habit of making head growth only, leaving the lower stems bare. The only remedy for this is severe pruning once every three years to promote young growth from the base. Moss Roses generally should be severely pruned, and to produce good results should be liberally manured.

Except the delicate Tea Roses, all the others can be pruned from the middle of March onwards unless a sudden cold season interferes. The position of the Rose trees, of course, will have a qualifying word on this. The last week in March or early in April will be time enough for the Climbing varieties of the H. T. class, such as Lady Ashtown, La France, Caroline Testout, &c., growing on walls or trellis. Some of the Climbing Tea Roses and their hybrids, Reine Marie Henriette, Mme. Jules Gravereaux, Mme. Berard, Mme. Eugène Verdier, and others can be pruned later still.

Many of the Hybrid Teas and Hybrid Perpetuals have their special failings which can be learned with their cultivation. Some have the knack of irregular growth—to be guarded against in pruning. This is about the only fault of that splendid Rose Madame Abel Chatenay. Mons. Joseph Hill, too, often grows one long sloping branch and allows the rest to die back. Gustave Regis resents severe pruning, but if left to itself will prove very floriferous. Grussan Teplitz behaves similarly. Frankarl Druschki, when it has reached full development, will not take kindly if any but moderate pruning is employed. Roses like J. B. Clark are apt to produce split blooms if over-pruned, but grown freely will give excellent results. George Dickson sometimes grows long shoots unproductive of blooms for the season unless tipped before they have gone too far. "Shy blooming Roses" and Roses that flower well only once during the season, such as Margaret Dickson, Ulrich Brunner, Gloire Lyonnaise, Mme. Gabriel Luizet, E. Vexrat Hermanos, may be spared the knife in a great measure. Let them grow at will, and their short flowering season will be a productive one.

All the foregoing has reference solely to Rose growing for decorative effect. Roses for exhibition, of course, require different treat-

ment. Much closer pruning is necessary to produce a bloom fit to catch the judge's eye. For the latter purpose one must be satisfied with fewer Roses, but of more excellent quality. And this can be secured by limiting both the number of shoots and of buds on these and by accompanying liberal treatment.

J. A. F. G.

(To be continued.)

The Alpine Garden.

THE mild weather of December and January, having coaxed into bloom many March and April flowerers, has now left us, and the plants, realising too late that they have been deceived, are doing their best to face the cold, wet days.

In the alpine wood, Polyanthus and Primroses are flowering in profusion, the old-fashioned single deep pink P. "Balmoral" looking very well naturalised under pine trees.

In the garden, *Primula caschmeriana* and *Primula denticulata* are flowering well, also some very interesting seedlings of the former, varying in colour from very deep purple to white.

Primula rosea, planted beside the bog pond, shows great promise of flower; this *Primula* does best here in a mixture of loam and peat, top-dressed lightly with cow manure in the autumn.

Of the Saxes in bloom *S. retusa*, in peat, is remarkable. *S. oppositifolia latina* and *S. o. alba* have also begun to open, the latter is rather a "miffy" subject here.

Sax. Haagi, *S. Boydii*, *S. dalmatica*, *S. boryi* are amongst the most pleasing in bloom. Sax. *apiculata*, *S. sanata*, *S. Elizabethæ* and others are making a fine show.

Erica carnea and *Erica Medit. hybrida* are giving good colour effect, and patches of the double Primrose "Arthur de Malines" on the hills give a good dash of purple.

Sisyrinchium grandiflorum and *Thlaspi bulbosum* look very charming flowering side by side.

The outdoor work has been rather held up owing to the condition of the ground, but a good deal of attention has been given to the trees and shrubs in the alpine garden; many trees, having grown too aggressive for the positions they occupied, have been removed and replaced by more suitable subjects.

This work of replacing, thinning out and pruning trees and shrubs in the alpine garden is most important. If they are not watched and "kept in their place" they very soon lose their character, and very possibly alter the character of the rockwork.

Deciduous trees and shrubs should, as far as

possible, be kept out of the alpine garden, but if a bit of ground removed from the actual rock-work is available, a few young silver birches give a very charming effect if planted on the outskirts of a plantation of pines.

The open plunge beds have been gone over, and where repotting was not necessary, the pots were cleaned and the drainage seen to.

From now on seeds will be sown. A hotbed has been prepared, and in it the pots of seeds sown last year and which have not germinated will be plunged.

In this way many seeds dormant in their pots all the year will germinate in a few weeks; any which refuse to answer this treatment are given up as hopeless cases, a rather hasty method of dealing with alpine seeds, perhaps, which often appear when they have been in their pots for three years, but where seed frame accommodation is not large it is sometimes necessary to assume the worst.

At the moment of writing the alpine house is looking very bright, some pots of *Lithospermum rosarinifolium* are covered with their delightful blue flowers (it is not quite hardy here), and any Saxes showing bud in the open plunge beds have been brought in and are making a splendid show, amongst them Sax, Griesbachii and Sax, Frederici Augusti, and a group of yellows include Sax, Boydii, Sax, Boydii Faldonside, Sax, Haagi, Sax, Pauline and some interesting forms of Sax, Elizabethae. M. E.

Tuberous-rooted Begonias.

Is common with the *Gladiolus* and the *Dahlia*, Begonias are well suited for the amateur or owner of a small garden on account of the simplicity of cultivation and the ease with which they can be stored over the dormant winter season. Moreover, the Begonia has an advantage in the fact that it is suitable for growing in pots or for planting out in summer.

As a rule, the single varieties are best for "bedding out"; the flowers, though large in modern varieties, are carried more erect than those of the doubles, and, being less heavy, are not so prone to injury by rain and wind. There are some doubles, however, which have proved suitable for planting out, a typical variety being Major Hope, light rose in colour and universally admired wherever grown. Begonias have an advantage, too, over "Geraniums" for bedding in that they are better wet weather plants, flowering quite well under such conditions, unless the temperature proves abnormally low, over a considerable period. In Scotland, where the summer temperature is not very high and the summer season short, Begonias are very

successfully employed in flower garden work. On the other hand, they will endure hot weather and bright sun quite well if kept cool and moist at the roots and lightly sprinkled with a fine rose can in the evenings during dry weather. The worst enemy of Begonias outside is a draught; the thick fleshy leaves soon become brown at the edges if exposed to a constant draught, which causes them to lose moisture faster than the roots can supply it.

CULTIVATION.

Begonias are quite easily raised from seeds where a warm greenhouse is available, but the beginner will find it better to obtain dormant one year old tubers, as they are less troublesome to manage, and with ordinary care good results are certain the same season.

Early in March the tubers must be planted in a box which has been well drained and filled with a light compost of sandy soil and leaf-mould. The tubers should be planted so that the top is about level with the surface of the soil. For one year old tubers a space of about three inches apart in the boxes will be sufficient, allowing more for larger tubers, or according to how long they are to remain in the box. If a warm greenhouse is available, it provides an excellent place in which to start the tubers. If the soil is just moderately moist at first, very little water is required, but subsequently, as the soil dries and the young growths begin to push up, water must be applied when necessary, taking care not to allow it to collect on the crowns of the tubers. Towards the end of April or early in May, tubers started in a greenhouse must be transferred to a cold frame to get accustomed to a cooler atmosphere before finally planting out in summer quarters. Arrangements must be made to cover the frame at night in case of frost, which often comes suddenly in late spring. It may happen that the would-be grower has neither greenhouse nor frame, in which case he may box his tubers as described, and allow them to start naturally on a shelf or window-sill, placing some sheets of brown paper or newspaper over the box at night until the growths have made some progress, and in case of frost. Towards the middle or end of May the box may be stood outside close under a wall and covered at night, finally planting out not earlier than the first week in June.

Tubers started thus will not be so advanced at planting out time as those started in heat, but with the warmer weather they will grow rapidly and soon come into flower. Care must be exercised in removing the tubers from the box, so that the roots are injured as little as

possible. The beds must be deeply dug, and have plenty of thoroughly rotten manure or leaf-mould incorporated in the soil, as Begonias are gross feeders and love moisture.

POT CULTURE.

The cultivation of Begonias in pots presents no great difficulty. Double varieties are most favoured for this purpose, and make a very lovely display. The tubers may be started in boxes, as described for "bedding out," but instead of being left to grow on in the box they are transferred to pots when the young shoots are a few inches high and the leaves beginning to expand. In potting, the surface of the tuber should be just below the soil, and a pot just large enough to allow of an inch or so of soil between the tuber and the pot is quite big enough. In the case of small young tubers, a larger pot will be necessary, as the roots penetrate to the side of pot—one a couple of inches wider should do for the season. Larger and older tubers may be put in larger pots according to size, but as a rule too large pots should be avoided. In potting, it is most important to allow at least half an inch below the rim for water.

A suitable compost is made up of loam, leaf-mould, rotten manure, and sharp sand in about equal proportions. If the town dweller has difficulty in obtaining the necessary ingredients he can usually purchase a bushel of prepared compost from a local nurseryman or market gardener for a couple of shillings or so.

Water well on first potting, and subsequently, as often as the soil is becoming dry, sprinkle lightly overhead and shade from bright sun in the middle of the day if the plants are under glass. If a small greenhouse is available, a pretty display can be made, or the pots may be stood outside when danger of frost is over and moved into the dwellinghouse when coming into flower.

When frost has cut down the plants in beds they must be lifted and laid to dry in a cool airy place out of reach of frost. When the shoots fall away and the tubers are quite dry they may be stored away in a box and covered with dry sand until the following spring. Pot-grown plants must be dried off towards the end of autumn, or when the flowers are becoming smaller and fewer.

PRACTICE.

Rhododendron præcox.

THIS lovely early-flowering hybrid has been in bloom now for some weeks, and is very welcome at this season. The flowers are rosy purple, the leaves roundish and dark green. It is a hybrid of *Rhod. ciliatum* × *R. dauricum*, the latter of which was in flower a month ago. *R. ciliatum* is flowering at present out of doors, but all these early-flowering species and hybrids are dependent on weather conditions.

The Arboretum.

THE weather up to the middle of February, when these notes are being written, has been of the very worst kind for pruning. Days of piercing cold wind, accompanied by heavy showers of sleet and snow, made it impossible for men to carry on the work with any comfort. The soil, too, was wet and unfit for working most of the time, but every opportunity was taken of a dry day with a little sunshine to push on with any planting of deciduous trees or shrubs for which places had not previously been found, and which it was desirable to get into permanent quarters.

PRUNING.

This is being proceeded with as rapidly as possible whenever the weather is at all suitable, for despite this cold snap, there is considerable evidences of growth betokening some movement of the sap, so that any pruning still remaining should be finished up at once. Early flowering shrubs and small trees like the Winter Sweet and *Prunus Davidiana* may be shortened back now, especially the former where growing against a wall. When growing thus the shoots are generally much longer than when grown as a bush in the open: they must, therefore, be cut back to one or two eyes. After some years wall-grown plants are apt to produce too many long sappy shoots, and these are useless for flower production. This tendency may be corrected by root pruning, doing one half of the tree at a time. Short, well-ripened shoots are much the best for flowering. *Prunus Davidiana*, the earliest flowering Almond, makes long slender growths when young and vigorous: these, when well ripened, flower well, but if too soft will usually flower only at the end. After a year or two, however, the plants will settle down, as it were, and produce shorter shoots, which will flower much better, and less pruning will be required. This Almond looks particularly well standing up among evergreens at the back of a shrubbery. Another fine Almond flowering in February is *P. amygdalus persicoides* with large pale pink blossoms, which are very attractive. It seems to be one of the hardiest and most vigorous of the Almonds, and flowers well every year. *Prunus cerasifera*, the Myrobalan or Cherry Plum, is also flowering well, bearing abundance of small white flowers. *Lonicera Standishii*, the early, fragrant, white flowered Honeysuckle, is frequently grown against a wall for the protection of its blossoms, which are delightful to cut and place in a vase. It flowers very often from Christmas through February, and may now be shortened back if getting too far out from the wall. As a rule, it does not require severe pruning, but may occasionally need to be dealt with to keep it within bounds. It is quite hardy, and grows just as well in a shrubbery, where, however, the flowers are more apt to be spoilt by frost and cold winds.

Many people confuse *L. Standishii* with *L. fragrantissima*, a somewhat similar shrub, which, however, is nearly evergreen, and the leaves are shorter than those of *L. Standishii*, without the long drawn out point of the latter. *L. fragrantissima* flowers early, too, but the flowers are less conspicuous, due to the presence of the foliage. There is considerable growth on many of the Clematises now, and the late flowering species, of which *C. Jackmanii* is an example, should be cut back without delay. The early

flowers; the *stamens* are not to be left to flower, and be pruned afterwards.

CATKINS.

Many of the catkin-bearing trees and shrubs have been very beautiful for some time. There are few prettier sights than a large bush of *Salix elliptica* covered with its long slender catkins of a silvery grey colour dappled with yellow as the ripe stamens appear. The male and female catkins are borne on separate bushes, and it is the male ones that are most ornamental. The female are shorter and less conspicuous, but when grown near a male plant they produce dark brown or nearly black berries containing the seeds.

Many of the willows have been beautiful for some time with their myriads of silvery catkins now becoming yellow with the stamens. *Salix rigosa*, *S. myricaria* and *S. caprea* have been conspicuous.

One of the prettiest Alders is *Alnus incana*, which has orange red shoots bearing catkins of a similar or deeper colour; there are few prettier sights than this tree on a bright morning in early spring.

Many of the Poplars produce catkins of much beauty, especially when they are opening and displaying the red anthers.

The Hazels, too, are very pretty, not the least beautiful of which is the *Constantinople Hazel*, *Corylus columnata*, which makes a spreading head and is pretty as a lawn tree.

PROPAGATION.

Cuttings of Poplars and Willows put in in spring just before the buds begin to burst, often root better than when taken in autumn; especially is this true of the Poplars, some of which are a little difficult to strike from cuttings of the shoots. Well drained sandy soil is best for the cutting beds, and the cuttings should be made long enough to allow at least 6 inches to be buried in the ground. It is best to lay a line and with a spade make a trench about 9 inches deep; the back of the trench will be against the line, and here the cuttings may be placed at 9 inches apart, the soil being then filled in and trampled firm. With some cuttings it is advisable to have a "heel" of old wood attached which, being firmer, is not so apt to decay, but with Willows and Poplars it seems immaterial, as they root equally well without the old wood. Cuttings of the ripened wood of *Philadelphus*, *Deutzias*, *Diervillas*, *Ribes*, &c., may still be put in with a fair chance of success. In a few weeks soft cuttings of the early growers will be fit to handle under frames and handlights. B.

Mr. F. Bedford.

FIFTY years has our old friend presided over and wrought in the fine old gardens of Straffan House in quiet Kildare, and for that time, save for two short years, the writer of this brief note has been more or less in intimate touch with him and his good work, for a visit to Straffan was always interesting, instructive, and enjoyable, save two sad occasions when the visits were lost sad tokens of respect for those he has "lost awhile." We could, indeed, well fill a whole number of *IRISH GARDENING* with memories of Straffan in which our old friend has played the principal part, but as this must resolve itself into

a valedictory note, we may forthwith give the short *résumé* of his gardening life, he has kindly furnished (it is hard to coax anything out of him where publicity is concerned). This is in his own words, viz.:

"Born at Sheddfield, Hampshire, 1816, and when a little over thirteen years of age started work as garden-boy at Park Place, Wickham, with a walk of two miles each way morning and night, for 3s. 6d. weekly, and did this for three years, and that in the hardest manual work of my lifetime. My next move was to Sheddfield Lodge under Mr. Ross, a good gardener and the kindest of men, and to whose interest and influence I owe most of my success in after life; here I remained five years, and up to this had not been under glass. My next move was to Leigh Park, Havant, Hants, then the residence of W. H. Stowe, Esq. This was a very



MR. FREDERICK BEDFORD.

large establishment, with much glass, under the management of Mr. George Young, a splendid gardener, and known as 'Father' to the young men. This was the home of all kinds of exotic plants, but especially for those termed hardywooded, then so much to the fore, and much exhibiting was done from here. From here I went to the orchid houses of the late Mr. B. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, and of which I soon had full charge. From here Mr. Harry Veitch (now Sir Harry) sent me to take charge of the Lonsborough collections of Orchids under the late Mr. William Denning, Grimsdon Park, Tadcaster, Yorks. In 1872 the Veitchian Firm sent me as head gardener to the Earl of Kenmare, Killarney House, Co. Kerry. On the pulling down of the old mansion and starting to build the new Killarney House, I was not needed, and then I obtained the appointment as gardener to the late Major and the Hon.

Mrs. Barton at Straffan House, and entered on my duties 11th November, 1875, and after serving the third generation of the Barton family had to retire 6th January, 1916."

To this, momentarily returning to the scene of Mr. Bedford's labours of love, we may append a note of those primary features which have impressed themselves on our memory. First, the plants, and of those that superb specimen (since broken up) of *Drynaria diversifolia*, which the late Dr. Moore, of Glasnevin, said he would go all round the world if they would give him the plant when he came back. Stove plants generally were the features of Straffan during the late Hon. Mrs. Barton's time, and watching the development of new things, such as *Anthurium Veitchii*, into the highest they were capable of, peculiarly attractive to our old friend and his visitors. As for hardy things, under many phases of plant

life we have seen original stocks, as represented by a solitary bulb of Sir Watkin Daffodil, when sold at a guinea, get out of the gardens to be represented by millions, we may say, running over and down the green slopes of the Liffey's brim, and the wild garden on the island with its stately bamboos and noble-foliaged things, all initiated and developed under the same ministering hand. These would take a volume to do justice to. We cannot refrain, however,

from the mere mention of that glorious colony of *Cypripedium spectabile* in the old garden, nor overlook the splendidly trained and grandly cropping wall trees which our old friend personally tended and trained in the way they should go, and those who have seen them will not need to be told Mr. Bedford was a worker in the full sense of the term. However, these are memories we now conclude in wishing him and Mrs. Bedford every happiness in their retirement, believing that in the quiet consciousness of good work done "Those joys will always last, and hope still brighten days to come while memory gilds the past."

K., Dublin.

Chionodoxa Lucilæ alba.

THIS lovely little bulbous plant is now coming into bloom, and looks very beautiful so early in the year. Nothing arouses interest in the rock garden so much as early-blooming plants of all kinds.

Irish Grown Fruit.

IN the January number of IRISH GARDENING we gave illustrations of apples and pears grown in the west and exhibited at the Clare Horticultural Society's Show. In the present issue we are glad to illustrate what can be done with apples in Kilkenny. The illustration shows forty-five dishes of apples in forty-five varieties, and it is a matter for congratulation that eleven of them won prizes at the Exhibition of British Grown Fruit held in London last October. The apples were grown in Bessborough Gardens, Piltown, from whence a large number of first prizes have been won at London shows during the last six years. This must serve as a great incentive to gardeners and farmers to persevere in the planting of apples in Ireland, especially at a time when the necessity for pro-

ducingasmuch food as possible is being urged on all sides. There seems no doubt that the finest quality cooking and eating apples can be produced abundantly in Ireland with reasonable care in cultivation and selection of varieties.

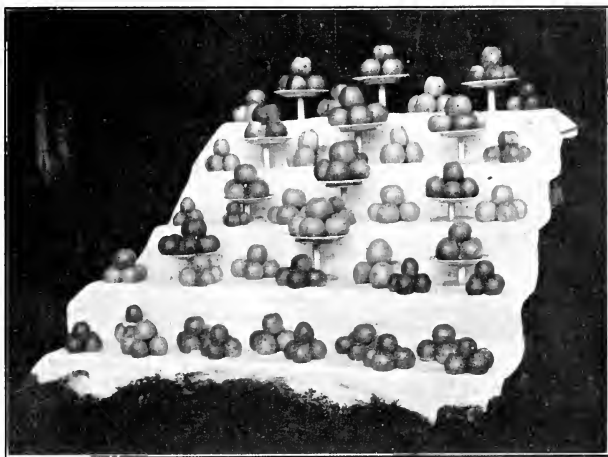


Photo by

COLLECTION OF 45 DISHES OF APPLES GROWN IN THE GARDENS AT BESSBOROUGH PARK, KILKENNY.

[Capt. Penrose.]

Beekeeping

TO THE EDITOR

SIR.—Fruit-growing to be successful should be combined with beekeeping, as when bees are kept in the vicinity of fruit gardens they are not only

a source of profit through the honey they produce, but their presence is a matter of considerable importance in assisting the cross-fertilisation and more regular production of perfectly formed and developed fruit. Fertilisation is doubtless assisted by wind and other insects, but in many cases where the blossom has not been fully fertilised by bees, there is a deficiency in seed formation which is largely responsible for the premature dropping of apples, pears, and plums. This fact is now so well recognised by many fruit growers that they consider the presence of bees an indispensable aid to obtain the best results.

The past winter has, for the most part, been favourable to the bees. The weather, although abnormally wet and windy, has been sufficiently cold to keep them confined to the hive, whilst there has been occasional mild opportunities, but not too frequent, for the necessary cleansing flights, so that the consumption of stores and

wear and tear of bee life must have been almost at a minimum.

Hive roofs should be examined to see if they are leaking, and if any dampness be found prompt measures should be taken to make them waterproof by adding some covering, such as old linoleum or tanned felt to throw off the wet till the roof is dry enough to be overhauled and painted. Any damp coverings near the bees should be removed and replaced by dry ones.

Examine hives on the first favourable opportunity when bees are flying to ascertain if the food supply is sufficient. In doing so be careful not to disturb the bees more than is absolutely necessary to see if there is still sealed stores on the back frames; if there are plenty of sealed stores, uncap or bruise about 3 inches of capping and cover up snugly. If there is an apparent risk of shortage before it is safe to begin feeding with syrup, place a cake of candy over the centre of the cluster, and if there is a scarcity of pollen from willows or other sources, give flour candy, or pea flour may be placed among shavings or chaff in a sheltered sunny corner, to which the bees can be attracted on fine days. Frames of sealed stores that have been stored is the best stimulant, and should be placed at the back of the brood nest, and at the same time remove the empty frame next the dummy.

Sections and foundation and other accessories likely to be required for the coming season should be ordered early, as owing to the war there may be delays through congestion of traffic, besides many establishments have been reduced in help by their experienced hands having decided to do their "bit at the front."

PETER BROCK.

1 Fairview, Enniskillen.

Notes for Novices.

YOUNG vegetable plants growing on under the shelter of frames must be given every attention now with regard to watering and airing. It is an essential point to see that a ebk of air is admitted before the sun strikes upon the frame. If the day is warm, the lights may be removed entirely for several hours during the day in order to inure the plants to hardier conditions, but do not forget to lay them on again in case of a sharp frost during the night. Apply to early cabbage in the open a dressing of nitrate of soda at the rate of one ounce to the square yard, and stir it well in with the Dutch hoe. Farmyard liquid manure is the next best substitute, only it lacks the quickening effect of the nitrate.

Sow a desirable quantity of *Gratus* peas about the first of the month, and repeat the same a fortnight later as a succession. The soil will now be in a warmer condition, consequently the seeds will not be so liable to rot as they would be in the earlier part of the year. A line of *Victoria* spinach may be sown between each row of peas. Draw out a drill 2 inches deep, sow fairly thin, and cover with fine soil. The main crop of onions can be sown towards the end of the month whenever the surface soil is got in a nice friable condition.

Onions thrive best in a soil that has been well trenched and liberally manured in dry weather during the late autumn. Before sowing the seeds, give the bed a topdressing of soot, sufficiently thick to make the soil quite black, and with

a wooden rake thoroughly mix it with the surface soil. Tread the whole bed quite firm and again rake it level. Draw out shallow drills at one foot apart and one inch deep. Sow the seeds thinly and evenly, and fill in with a light covering of the finest silt. Gently tap the seed lines with a rake, and finish off the bed with a nice level surface. *Ailsa Craig*, *Bedford Champion*, and *James* Keeping are three excellent varieties for spring sowing. The silver-skinned pickling onion may also be included.

On a warm sheltered border sow a few lines of carrots and turnips for the earliest use. Drills drawn out at 10 inches apart and 1 inch deep will suit this early sowing. *Early Gem* carrot and *Early Snowball* turnip are two good varieties.

Seed potatoes that were laid out in boxes in the early part of the year should now be in good order for planting out. Choose a warm border, the soil of which should be of a light rich nature. Trenches are best opened out to a depth of 5 inches, and a space of 18 inches allowed between each trench. Plant the tubers at 9 inches apart in the rows. Cover with 1 inches of soil, breaking up all lumps as the work proceeds. Three of the best early varieties are *Sharpe's Victor*, *Duke of York* and *May Queen*.

Celery seeds may be sown in boxes for the main crop. Being one of the best of winter vegetables, it is worth doing well. By making two successional sowings, one in March and the other in April, a supply of good heads may be obtained from September until March. Procure shallow boxes, place a layer of corks in the bottom of each to ensure ample drainage, and fill up with a light rich mixture of fine soil. Sow thinly, and cover the seeds lightly with the remaining compost. Stand the boxes in a house or frame in which a temperature of 60° is maintained. As soon as the young plants produce their first rough leaf transplant to other boxes, filled with a compost of three parts loam and one leaf-mould, with the addition of a little powdery manure. *Standard Bearer* (pink) and *Wright's Grove* (white) are two reliable varieties, and of excellent quality.

Early this month make a sowing of tomato seed to ensure good plants for planting out of doors at the end of May. By that date it is necessary to have the plants well established in 5-inch pots. *Ailsa Craig* and *Sunrise* are both free setters, and bear abundant fruits of fine shape and colour.

On a warm, sheltered border, which consists of a light rich soil in good working order, sow the first few lines of lettuce. The lines should be drawn out at one foot apart and one inch deep. Sow moderately thin, and as soon as the seedlings appear through the surface keep a sharp look out for slugs. A light dusting of soot applied between the lines in the early morning several times a week will, to a large extent, keep the plants free from these enemies. Run the Dutch hoe frequently between the lines to promote healthy and rapid growth. All the *Year Round* is one of the best varieties.

Pears, peaches, plums and cherries in variety will soon be coming in bloom, and will require some form of protection against harsh, frosty winds which we are liable to experience during March. A double covering of fish-netting hung over trees planted against walls will prove of much value as a protector. Bush trees in the

open are best protected by the use of evergreen boughs stuck in here and there among the branches. About mid-day, when the blossoms are fully expanded and in a thoroughly dry condition, every effort should be made to pollinate artificially as many of the blooms as possible. A rabbit's tail tied on to the end of a bamboo cane, and sufficiently long to reach to the top of the trees, makes an ideal pollinator.

If bad weather conditions prevail at this early season, there will be but few bees on the wing, and it is mainly owing to their absence that many trees remain blank during the year. Climbing Roses, deciduous and evergreen shrubs planted against walls should be examined as to their requisite treatment in pruning and laying in of the shoots and main branches. Prune the Climbing type of Rose according to the amount of wall space it is intended to furnish, but in the first place, remove entirely all dead wood and weak and sappy growths. Some of the old shoots may be cut out also with the view of re-furnishing with well ripened shoots of last year's production. The inclusion of new wood is particularly advisable, as this tends to keep the plant in a clean healthy condition. Dwarf Rose plants in beds and borders are best pruned about the middle of the month, provided the weather is favourable for that operation. Teas should be left unpruned until the beginning of April, as they are of a more delicate order than the Hybrids. Before pruning each Rose, firstly consider the quantity of buds it can well afford to support for future development, and secondly, the nature of the wood, whether it is well ripened, medium or unripened. Plump buds on thoroughly ripened wood produce the finest flowers, therefore the careful selection of wood and buds is of the utmost importance. Cut clean away all dead wood and thick sappy growths. The remaining shoots should be cut back to a plump bud, preferably from two to four eyes from the base. When the work of pruning is completed, rake up the prunings and have them burned without delay. See that the soil around the neck of each plant is made firm, and if there is a deficiency of soil at that part make it well up to the base of the shoots with good rich loam. The beds should afterwards be lightly forked and the soil broken up fine as the work proceeds.

M. D.

Hints to Amateurs.

By R. M. POLLOCK.

GROUND for annuals must be prepared this month, as without well and carefully prepared soil the best results cannot be obtained, and "the best" in the case of annuals is well worth aiming for. Dig the ground deeply and introduce some good, well-decayed manure, leaving the surface rough until the sowing is actually to be made. Every year annuals are becoming more and more popular, and a glance at the seedsmen's lists of these seeds, and the classes at all shows for annuals is a certain proof that gardeners are realising that this class of plant is an advantage and in many cases a necessity in all gardens. Annuals are a great help in filling and brighten-

ing up a new garden where it is too late in the season to put in summer bedding, and where there is as yet no permanent planting. They also fill gaps in herbaceous borders where spring bulbs have left a vacancy. There are now annuals for all parts of the garden, dainty little dwarf growers suitable for the rockery, tall stately ones for the big borders, suitable free growers, which can be sown broadcast in the wild garden; there are climbers, and there are those suitable for the bog garden and damp places. The following are some which are useful for cutting and indoor decoration:—

BRACHYCOMME IBERIDIFOLIA, the "Swan River Daisy," a beautiful blue, of which there is also a white form. The flowers are very like the stellata variety of *Cineraria*, about 12 to 18 inches in height. They may be sown in the open, but better results come from early spring sowing in pans, pricking out and planting later in a bright sunny position.

COSMOS BIPINNATUS.—This is a very late annual, and almost waits until autumn before flowering, and presumably for this reason it is seldom seen. The plants, when well grown, stand 3 feet high, with attractive feathery foliage, and white or red Dahlia-like flowers. Plants must be raised indoors and planted out in May or June. They are excellent in every way for cutting.

SWEET SULTANS should be more grown, and the different shades of colour in the feathery flowers are distinct from those in any other annual. Unfortunately it is very difficult to protect them from slugs, as the foliage is very soft and juicy. When doing well they attain a height of 2 feet, and can be had in distinct colours, lemon, yellow, bright yellow, white and rosy pink.

CLARKIAS, as annuals, cannot be beaten, and are popular in most gardens. They are excellent as cut flowers. All the varieties seen equally good, singles or doubles, pinks, orange red, white, salmon, &c., and they can be sown in the open ground. The annual Larkspurs—*Delphinium*—are now quite indispensable in our borders, and it is sometimes hard to realise, when looking at a well-grown plant, that it is only an annual, and that it will be taken out in the autumn and burnt in the bonfire. The Stock-flowered are the most effective; but to get the best results, these should be sown in the autumn, pricked out when fit to handle, and planted in their permanent quarters in April or May.

GILIAS.—These are not as much grown as they might be. *G. tricolor* is sometimes seen, but it is not nearly as attractive as *G. androsaemifolia*, about 10 inches to 1 foot high, pale lilac often white, flax-like flowers, which last well in water. There are other varieties, and they are often listed in catalogues under the name *Leptosiphon*.

GYPSOPHILA.—Everyone knows the perennials species, so often used at shows in the staging of Sweet Peas, but there is also an annual species, *G. elegans*, white, 1 ft. to 1½ ft. high, and a pink form, *elegans rosea*, both of which much resemble the perennial species, but can be sown broadcast in any good soil, and are excellent for cutting and indoor decoration.

SWEET PEAS.—The advantage of these in our gardens need no comment, and no garden is

complete without them, and no annual lends itself better to house-decoration.

MALLOW, LAVATERA. These are free branching annuals, which can be sown where they are to flower, and have the advantage of doing quite well in a shady part of the garden, where many other things would not be successful. *L. times tris*, white and pink, often catalogued as *L. splendens* alba and splendens rosea. They flower freely and open freely in winter.

Leptocyne stiltmannii is an annual of recent introduction, with yellow flowers about 1½ inches across, resembling a small single Dahlia, and, like the Dahlia, the flowers are borne single on long stems.

Poppies and Mignonette are among the most popular annuals, and there are plenty of varieties to choose from.

Eucharidium, which belongs to the same family as *Godetias*, is an annual from California. It flowers in an easily grown species, 6 inches high, pinky red flowers which will last a long time cut, and make quite a pretty patch in a border. This annual can be sown where it is to flower, and the plants are much improved by having the weaker ones thinned out early in the season.

The Sweet Pea Annual.

THIS Annual, which records the doings of the National Sweet Pea Society during last year, should be in the hands of all garden lovers, for what garden is there worthy of the name where Sweet Peas are not grown? No summer flower can compare with the Sweet Pea, as Mr. Todd of Edinburgh says in the Annual, for "beauty and variety, ease of production, fragrance, length of season in fine bloom, and ready response to high culture, beautiful in poor cultivation, exquisite in the best." The year 1915 was a very good one for Sweet Peas; streak and other diseases were not prevalent, and the flowering period was longer than usual. The seeding season was, however, spoiled by the wet and windy weather in August, so that the seed crop was a poor one. Perhaps the most important work of the Society in the encouragement of the cultivation and improvement of Sweet Peas is "the trials." Under this scheme all new varieties are grown under the same conditions at a selected "trial ground"; these are inspected in the flowering season by a special committee of the Society, which reports on the doings of each variety. The trials in 1915 were most successful, and a full report is given in the Annual, so that all growers may know what new varieties were most reliable. Mr. Thomas Stevenson gives his "Impressions of a few new varieties." Mr. T. A. Weston describes the efforts that have been made year after year to discover the cause of, and a remedy for, streak disease. Other contributions are—"Failures and Disappointments" by Mr. W. Cuthberts in "Summer Sweet Peas in America," "Sweet Peas in San Francisco," "Table Decorations," "Early Flowering Sweet Peas in Warm Climates," "Sweet Peas as Decorative Plants," &c. The Annual is beautifully illustrated, and it is sent free to all subscribers to the National Sweet Pea Society, the subscription to which is only 5s. Mr. H. D. Tigwell, Harrow View, Greenford, Middlesex, will gladly supply all particulars.

Prinsepia sinensis.

ORIGINALLY distributed as *Plagiospermum sinensis*, this shrub is to be found in a few gardens where rare or uncommon plants find a place. It is not striking even when in flower, but is, nevertheless, interesting, and has a quiet beauty of its own when closely examined. The leaves are produced in clusters on the older shoots, but on those of the current year they are borne singly; the branches are also furnished with spines. The flowers are produced in the leaf axils all along the branches, and measure about half an inch across; they are of a light yellow colour, rather pretty, but rendered somewhat ineffective by being produced on the undersides of the branches among the young leaves. The shrub was in flower in the Botanic Gardens at Glasnevin in February; it is said to grow 6 feet high, but specimens a couple of feet high flower freely.

The Month's Work.

The Flower Garden.

By CHARLES COPEN, Gardener and Forester to Lord Curzon, Castle Boro', Clonroche, Co. Wexford.

THE month of March may be described as a month of preparation for the spring, which does sometimes show us a little kindness in April. Spring flowers will be showing colour in various parts of the garden from now on, both in the flower garden and the rock garden. Early flowering shrubs on walls and in sheltered spots will be brightening up everything after the dullness of winter. Where Crocuses are naturalised in grass, and where not planted too thickly at planting time, the reward will be great. *Scilla Sibirica* and single Snowdrops mixed and planted on a sloping bank, partially sheltered, makes a lovely and a lasting feature at this period of the year. The rock garden requires keeping scrupulously clean this month; many plants are starting into growth, and small pieces of rubbish blown on to them will cause them to rot. At the end of the month, if dry days come and the operation is possible, carefully stir all the surface soil with a hand fork, and work in all crannies a little fine soil—old potting soil is excellent. With this firm in all plants loosened by frost and rains during the winter; cover all the ground with a layer of fine soil where the plants are small, and renew the granite chippings where necessary, or where tiny plants require protection from heavy rains these chippings of granite protect the roots of these tiny alpine and keep them cool later when the days are hot; they also prevent soil from being splashed over them, and this often causes the death of the smaller plants immediately after planting. Any planting of alpine, however, will better be left until April is here.

The Japanese Iris, so beautiful by the water edge, is much the better for frequent planting,

and now is the time to do it. A moist bottom, a few inches of good soil, and a topdressing of farmyard manure will grow them to perfection; let the sets be fairly small, say 4 inches square, and a few heavy stones placed on the top of manure, to hold the roots in position until established again, and where plants of *Meconopsis Wallichii* have been wintered in cold frames, these should be planted at the end of the month if weather conditions are favourable, otherwise it is better to wait until the ground is in a good friable and dry condition. This lovely blue Poppy is a biennial; it should be sown in March, grown freely in pots until 8-inch pots are occupied, grown as hardy as possible, and stood on a coal ash bottom all the summer. When the month of November arrives, winter the plants in a cold frame, giving all air possible, and keeping off heavy rains to prevent the crowns of the plants, which are covered with hairs, from rotting. Plants grown this way and planted out in batches of two dozen or less make lovely groups in a large rock garden or in a corner adjacent to a smaller one.

Any gaps in the herbaceous border should be planted at once, and the border lightly forked over if not already done. Any border Carnations wintered in pots should be planted immediately or they will not be a success. A few bulbs of the July flowering *Gladioli* can be put in groups through the herbaceous border at the end of this month, but the best varieties and main planting should be done early in April. Dahlias started a month ago will be full of cuttings now, and these should be inserted as soon as they are three inches long, taking care to cut off the bottom joint, otherwise a batch of suckers instead of a strong plant may result. After the recent storms a visit to all wall trees will be necessary. All subjects flowering on the current year's growth should be pruned—some hard and some lightly; experience is the only teacher as to this. The autumn flowering *Ceanothus Gloire de Versailles*, and many other hybrids require cutting back hard, but *Ceanothus*, *Rigidus-Veitchii*, *divaricatus dentatus*, and others which flower in May, must only be pruned after they have flowered. Look carefully after the growths of the Clematis *Jackmanii* section, which were pruned last November; these grow early, and are easily broken; the slugs also like them.

All the time that can be spared should be spent in sweeping and rolling the lawns and walks after the winter. The reward for this work will be seen the following summer. Seeds of half-hardy plants require to be sown under glass during this month. *Salpiglossis* should be sown early, as it takes a long time to complete its growth. *Aster Stocks*, *Nemesias*, the moss-leaf *Golden Pyrethrum*, and the French *Marigolds*, and many well known half-hardy annuals should be sown the last days of March either in boxes or in a greenhouse, or better still, on a very mild hot bed of leaves in a frame, where air at all times can be admitted. The secret, if secret there be, in the successful growing of annuals under glass is plenty of air at all times, grown hardy and slow without a check. If the frame is shut one morning and the plants naturally get drawn and leggy, the first breath of cold air that comes along cuts them off, gives them black legs, and every body is blamed for our own faults.

The hardy annuals, a list of which will be written for April, are best sown out in the garden, but not until April is here.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

THE FORWARD SEASON.—One cannot but be struck with the very advanced state of the buds on fruit trees for the time of the year, and although I am not a pessimist—few gardeners are—I am afraid this condition of things does not augur well for this season's fruit crops. At the end of January, in sheltered situations here, trees were too far advanced for spraying with alkali, and even in exposed places this could hardly be done without serious risk of injury after the middle of February. Fortunately a cold spell with snow has now supervened, and if it lasts a month or so (I write on Feb. 17th) it may right matters to some extent.

STRAWBERRIES.—The plants in established beds should be attended to as soon as the ground is dry enough to walk on. Remove all dead leaves left from the autumn clearing, and, if it is necessary, lightly fork in some short manure between the rows. On good land, which was well trenched and manured before planting, superphosphate, at the rate of 2 ounces to the square yard, can be forked in instead, to be supplemented, as soon as the plants are in active growth in April, by a dressing of sulphate of ammonia at one ounce to the square yard. Provided that the land was well enriched before planting, and that strawberries are to remain on the plot for only three years, as is the usual practice, this system of manuring is to be preferred, as the danger of damage to the roots is much less than if bulky manures have to be forked in. Gaps in the beds should be filled at the same time with plants from the reserve. If late runners have been wintered in pots, the first opportunity should be seized, when the ground is in good order, to plant these. Spring planted runners should not be allowed to fruit the first season. Remove all flower trusses from the plants as they appear, and at the same time keep a sharp look-out for "blind" or non-fruited plants, which should be pulled up and replaced by others. Examine plantations made last autumn, and make firm any plants loosened by frost, after which the ground should be lightly hoed.

THE FIG.—Figs on walls should be pruned this month before the sap rises. Tie in the young growths at about 12 inches apart. These should not be shortened, as it is usually on the upper part of last season's growths that the fruit is borne. The roots of fig trees should be restricted to a narrow border, as if they are allowed to roam at will in rich soil, nothing but gross and unfruitful wood will be the result. An ideal position is a border about 2 feet 6 inches wide, at the foot of a south or west wall, bounded by a gravel path. The border should be well drained, and the soil should consist of good loam, with the addition of some mortar-rubble and a little bone-meal.

GENERAL REMARKS.—Continue to apply

manure, and dig around fruit bushes and trees as advised in last month's notes whenever the ground is in suitable order. Have protecting materials in readiness for covering wall fruit trees from frost when in flower. Spruce boughs worked in carefully amongst the branches will do, if neither fish-netting nor tiffany are available. Grafting can be proceeded with at any time after the middle of the month, taking care to seal the union well either with grafting wax or with a mixture consisting of two parts tenacious clay to one part cow manure and horse droppings, carefully compounded. The grafting wax is to be preferred, as it is not so liable to crack in hot or dry weather. A spell of broken weather in March often affords an opportunity to dig between and around orchard trees, where the branches or roots do not admit of the plough being used. Time for this work is often grudged when the weather is good, especially now that labour is so scarce, although really it is a most important operation. The alleys should be left until pruning and spraying are finished, and then dug. These remarks apply to apple and pear trees. The ground under bush and standard plants should not be dug, as they fruit best in hard ground only lightly hoed when necessary. Another paying job for such weather is the removal of the grass from under and the top-dressing of any grass orchard trees requiring manual assistance. The turf should be removed for at least as far out as the branches spread.

The Vegetable Garden.

By J. B. Pow, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

ONIONS.—There are few vegetable crops of greater importance than that of the onion. The ground intended for this crop should be well manured and trenched the previous autumn. The soil should be left in ridges during the winter. At the first opportunity the soil should be thoroughly broken and levelled; it should then be trodden or rolled, and a good dressing of soot applied. Work the soil well into the soil with a rake, and secure a fairly even surface previous to drawing the drills for the seeds. Sow the lines 11 inches apart, draw the lines one half-inch deep. Sow thinly, cover the seeds lightly; the ground should be then trodden over in a direction at right angles to the lines; finish off the seed bed by carefully raking the surface over with an upturned rake.

BRASSICA FAMILY.—About the middle of the month nearly all seed of the Brassica family may be sown. It is well worth while making good preparation before sowing the seeds. Select a border that is fairly rich; give the border a good dressing of lime, fork the lime well into the soil before raking the surface; give the seed bed a dressing of wood ashes. Draw the lines one foot apart and one half inch deep. It is a good plan to red lead the seed before sowing and to cover the bed with a small mesh net after the seeds are sown. Some good varieties for succession are the following:—Broccoli Walcheren, Snow's Winter White, April Queen, Learnington, Late Queen, Methven's June, and Latest of All. Carterton Savoy is well worth a trial.

LEeks.—Sow a few lines of leeks for transplanting.

POTATOES.—Much depends on the locality and the state of the soil when the main crop of potatoes should be planted. From the beginning until the end of March, according to circumstances, is the best time for planting the tubers. Plant the dwarf sorts one and a half feet between the rows and one foot between the sets, the stronger growing sorts may be planted two and a half feet between the rows and one foot between the sets.

PARSNIPS.—Select an open situation where the soil is not too stiff. Parsnips delight in deep rich soil. The ground should be well manured and deeply trenched the previous autumn. Sow the lines one and a half feet apart, draw the lines one and a half inches deep, sow thinly, cover in the rows, and press the soil firmly.

CARROTS.—Make the first sowing of carrots in a warm situation about the middle of the month. Early French Horn and Scarlet Horn are two good early varieties.

TURNIPS.—Sow any of the early varieties of turnips at the first opportunity. Should they appear, dust the leaves with soot while they are damp.

CELERY.—A sowing of celery may be made in boxes or pans for the main crop. Sow thinly, cover the seeds lightly, and place in heat to germinate. When the seeds have germinated, remove to a cooler house or frame. At this date the celery plants can be transplanted into a cold frame in a well sheltered position.

PEAS.—From the month of March till the end of June, peas may be sown every fortnight. If trenches have been prepared there will be no difficulty in sowing peas in any kind of weather. To protect the peas when they are just over ground from birds, &c., put a few stakes down each side of the rows and pass some black thread along the stakes an inch or two from the ground.

TOMATOES.—Make a sowing of tomatoes for planting outside and growing under glass. Use 6-inch pots, and place in a warm house to germinate. Give the same treatment as advised in February. The tomatoes sown in February will now be in 6-inch pots; before the plants get pot-bound, remove them to their fruiting quarters. Use 10-inch pots or boxes any convenient size. A rough turfy compost, with a little decayed manure, will suit them. It is preferable to give artificial manure and manure water after the fruits begin swelling than to give rich compost previously.

SALADS.—Sow lettuce and radish on an early border. A few cucumber seeds may be sown and placed in heat. Use 3-inch pots, place the seed pointed end downwards about an inch deep in the soil.

ARTICHOKES.—Lift the crop of artichokes, store the best tubers for kitchen use and select the medium for re-planting. Plant the tubers three feet between the rows and one and a half feet between the sets.

GENERAL REMARKS.—Attend to all vegetables and salads in frames. Give plenty of ventilation to early cauliflowers, &c., that will require planting out towards the end of the month. Overhaul the herb borders and divide Globe artichokes. It has been almost impossible to get the winter's work of trenching and digging completed. When weather permits, get all vacant ground deeply dug.

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EDITOR—J. W. BESANT.

Border Carnations

By CHARLES COPPEN, 'Castle Boro', Clonroche, Co. Wexford.

A FEW years ago we were told that the newer race of Perpetual Flowering Carnations had sounded the death knell of our old friends—the Border Carnations. Although I have grown over 150 varieties of the Perpetual Flowering Carnations, I still have the same affection for my old favourites. In their short season of about six weeks, in the middle of summer, when all the choicest gems in our gardens are doing their best to outshine each other, they still hold pride of place. Nothing we have compares with their beauty of form, of colour, in its wondrous range, and startling, yet always harmonious combinations.

To those whose garden is situated in a limestone district and freely drained, almost all the varieties of Carnations are easily grown; others less fortunate must comply with the following simple rules if they wish for success. Lime is essential, and if this is added in the form of old mortar rubble the plants will revel in it. Even when lime is naturally present, a dressing of mortar rubble brings better results.

Waterlogged soil is death to all Carnations, and if the garden is situated on a pan of hard clay subsoil, the Carnation beds must be raised above the ordinary level of the garden and shallow trenches made between them on the same principle as was commonly used in growing potatoes on the ridges; beds made 5 feet wide, with alleys 2 feet wide, the alleys excavated about 9 inches, and the soil put on the top of the beds to raise them, will grow the plants very well, and ensure their roots being freely drained during the winter months. All the necessary cleaning, staking and disbudding will be done from these alleys, and the cutting of the flowers also.

The next operation is to trench the beds at least 2 feet deep, a moderate amount of well-rotted farmyard manure to be worked into the bottom portion of the trench, and the top 9 inches of soil to cover down all the manure, so that the roots of the plants cannot come in contact with the fresh manure during winter, and not until they are growing freely in the spring; in fact the manure, until it becomes

decomposed and well blended in the soil, is of no use to the carnation. The Border Carnation, as I shall try to emphasise again, is *not* a gross feeder. This digging should be done as long as possible before planting time, to allow the soil to settle down naturally. A good system is to measure out the beds 5 feet wide and plant four lines 15 inches apart, the plants to be 18 inches apart in the lines; this gives an appearance of a full bed, and as all operations are done from the 2 feet alleys between the beds, the extra distance between the plants in the lines gives more comfort in attending to the plants.

If possible to get wood ashes or ash from burnt garden refuse, a dressing of this would be beneficial when planting, and if some went down round the roots so much the better. Planting should be done the last week in September or the first week in October: plant firm, but avoid planting too deeply. An occasional look over the plants after frosty weather and the firming of any which have been lifted by the frost will be of service. Once March give us a few dry days, a light hoeing of the surface will help to aerate the soil; a light sprinkling of soot and bone meal in equal parts at the same time will be of service, especially if lightly hoed in; this will be all the feeding required until the flower spikes begin to run up in May. A teaspoonful of Bentley's Carnation manure to every plant may be sprinkled between the plants at that time, and again after the flower spikes have been disbudded in June. A light hoeing after each application will assist the plants, but on all occasions hoe the soil very lightly. The Carnation is a surface rooting plant, and does not want its roots chopped off.

If the flowers are needed for special purposes they should be disbudded to one flower. If for cut flowers or garden display, the side buds should only be taken out to 10 inches down the stem, leaving the lower side flowers to develop later. Should it be deemed necessary to protect the blooms for special purposes, a few wires stretched over the bed and a thin covering of

serim or tiffany will bring out in their full beauty and purity all the glorious colours they have. For exhibition there are canvas cups for each individual bloom, but those who seriously grow Border Carnations for exhibition grow them in pots, stand them on a cool ash bottom out of doors until the blooms show colour, they are then removed to a tent made of serim or to a greenhouse, as the weather dictates, or if they are too early or too late for the show.

Immediately the blooms are cut, we must commence again to layer next season's stock, and every day is of importance, as early planting means success the following year.

The operation of layering Carnations is a simple matter, the old plant has all the old leaves cleaned off except about four pairs of leaves at the top of the strongest shoots. All the weak layers are cut off, leaving about seven or eight. The layer will be about 4 to 5 inches long, and at the fourth joint a notch is cut up about half inch into the centre of the stem with a sharp knife, leaving half the joint attached to the little thong made by the incision. The layer is carefully bent until it can be fixed upright when pegged into the prepared soil waiting for it.

Water the old plants; in fact should the weather be dry, as is usually the case in early August, the beds should be soaked the night before layering the new plants. The following morning carefully loosen the soil from around the plants with a small hand fork; prepare some soil, equal parts loam and leaf-mould, with a proportion of sand to make the compost feel sharp to the hand; pass through a 4-inch riddle, and place this fine soil around the plants to receive the layers; this soil should be prepared the previous day, to be ready to hand when needed. Lightly press the soil down with the hand; try and work some soil between the little thong and the stem connecting to the parent plant, and peg down firmly in the ground. Please note, in pressing, that it is at the end of this little thong, with a portion of the joint attached, that the new roots come, so care must be taken not to damage it. At the end of every hour it will be necessary to water with a fine rose or water-can all the layers we have finished, and in a hot sunny day a few old newspapers spread lightly on top helps them to get over their first day; no shading is necessary after, and only on a hot day if at all. Afterwards, every evening, look over the layers, and if the soil be dry, water with a rose-can. I do not like pouring a lot of water on Carnation layers, but the soil must be made thoroughly moist once a day if the weather be dry. Please do not do this watering as a habit but only if the soil be dry. After a fortnight the layers ought to be

able to take care of themselves. In five weeks they should be ready to be cut from the parent plant, and after a few days they can be lifted and put into the new beds which have been prepared for them. Before cutting off the the layers examine the roots on the new plants by rising up one in several parts of the beds. Usually when one is accustomed to this work, it is quite an easy matter to know if the plants are rooted by the appearance of new signs of growth in the centre of the layer, but the beginner at this interesting operation would be wise to make sure.

I have added a list of varieties I have used for several years; each grower finds his own favourites, usually because for some unknown reason these varieties do better with him: Mrs. Reynolds Hole, one of the oldest varieties, known in some places amongst the experts as hard to grow well, growing without any special effort in other gardens—this one does splendidly with me. Grown naturally without disbudding, it is a sight to be appreciated; the old clove, with five layers pegged round the parent plant grown on without being lifted gives better blooms, and more of them than in new beds. I often ask why, but I cannot get an answer. The moral is, if you find out a good way of giving good results, stick to it; if you have a good old variety giving good results, stick to it. Try the new ones by all means; there is pleasure in it—the uncertainty is a pleasure—but do not expect them to always turn up with the virtuous lasting qualities of a tried and old friend.

Twelve varieties for exhibition:—Linkman, Sam Weller, Pasquin, Nizam Ronny Buchanan, Zulu, Sir Galahad, Cerecia, Lady Hermoine, Cardinal, Duchess of Wellington, Elizabeth Schiffner.

Twenty-four varieties for the garden:—Father O'Flynn, Duchess of Wellington, Ronny Buchanan, Lord Carew, Richmess, Mrs. W. H. Taylor, Pasquin, Jack London, Chintz, Silver Fox, Sir Galahad, Honeymoon, H. J. Cutbrush, Fire King, Bendigo, Daffodil, Solfaterre, The Marquis, Sam Weller, Duchess of Fife, Mrs. Reynolds Hole, Raby Castle, Old Clove, Dublin Pink. The last five varieties are best grown naturally without disbudding.

Twelve newer varieties worthy of trial:—King George, white; Queen Mary, rose pink; Becky Sharp, yellow ground, fancy; Dora Blick, deep apricot; Mrs. Andrew Brotherston, shaded purple, some white spots; Bookham, white; Lady Carew, clear apricot; Sidney Carton, maroon and yellow; H. J. Thorton, scarlet; Droitwich, white ground, fancy; Lieutenant Shackleton, yellow ground, fancy; My Fancy. The last is a peculiar and new combination of colours, very taking with some people,

Water in the Rock Garden

A GOOD deal has been written in IRISH GARDENING about bog gardens, their formation and planting, and the many plants which flourish therein, but the value of water in conjunction with the rock garden has not been so often commented on. The accompanying illustrations from the rock garden at Curragh Grange demonstrate very clearly the satisfactory effect of water pools and water-side vegetation as an adjunct of the rock garden. The size and shape of the pools will be governed by the extent of the rockwork, and even the smallest rockery may have its pool, though it may be only a shallow tub sunk in the ground and surrounded by suitable stones, grass or peat to hide the rim.

In the case of pools of some size the supply of water is, of course, a consideration, but where this is laid on to the rockery in any case, it is fairly easy to arrange matters. It is a very good plan to carry the supply pipe some distance up and allow the water to trickle in a tiny stream over the rocks, and thence by a suitable channel to the pool, or the latter may be immediately at the base of the rocks if desired. The construction of the pools requires careful consideration to avoid subsequent worry and disappointment. If it is intended to grow some of the smaller-growing Water Lilies, about two feet in depth of water will be required, but this need only be in the centre, diminishing to six or nine inches near the margin. The bottom and sides must be thoroughly puddled with stiff adhesive clay, kneaded and rammed thoroughly

while in a plastic state. Cement is preferred in some cases where the sub-soil is gravelly, but it is less natural in appearance, and not so well suited to the cultivation of aquatics. If the pools are of considerable size and the area surrounding or contiguous to them correspondingly ample there is no limit to the variety of plants which may be grown. Tall Spiræas, Astilbes, Irises of various species, Sidalceas,

Lysimachias, Trolliuses, Scarlet Lobelias, Podophyllums, Rushes and Saxifraga peltata will make a fine show from spring till autumn, while for the margins of smaller pools *Primula rosea*, *P. japonica*, *P. pulverulenta*, *P. Bulleyana*, *P. Unique*, *P. Lissadell Hybrid*, *P. sikkiensis*, *P. Asthore* and *P. Aileen Aron* are splendid, and with these may be grown many other moisture lovers as *Trollius pumilus* and variety *Yunnanensis*, *Synthyris reniformis*, *Sax. Fortunei*, *Gaultheria nummularifolia*, *Meconopsis integrifolia*, *M. racemosa*, *M. rudis*, *M. aculeata*, &c. The dwarf *Gm-*



WATER POOL IN THE ROCK GARDEN AT CURRAGH GRANGE.

neras like *dentata* and *magellanica* are interesting, while many hardy Orchids, such as *Cypripedium spectabile*, *C. pubescens* and many Orchises flourish in such a position. Water Lilies are now obtainable in many lovely varieties for deep or shallow water. Generally the pools in a rock garden will be comparatively shallow, and the medium growers will be best. The following can be recommended—*Nymphaea Laydekeri rosea*, *N. Froebeli*, *Andreana*, *Attraction*, *James Brydon*, *William Falconer*, *Ellisiana*, *pygmaea* and *pygmaea helvola*, the two latter requiring only about a foot of water.

There are, of course, many other varieties, but much must be left to individual taste and circumstances.

Other good aquatics are *Aponogeton distachyon*, *Brasenia peltata*, *Hortonia palustris*, *Orontium Aquaticum*, *Sagittarias*, *Typha minima*, &c. Water Lilies and other plants to be planted in the water should first be placed in baskets in good loam, and then dropped gently into the water.

May is a very good month to plant aquatics.

Primulas Obconica and Malacoides.

THE two above-named *Primulas* are well worthy, on their merits, of being placed in foremost rank amongst winter decorative plants for conservatory, greenhouses, &c.; they are exceedingly floriferous, and may be had in flower throughout the winter and spring months, well grown plants (and especially of *Obconica*) being very effective for decorative purposes; the sprays of flowers are also most useful as cut flowers for house decoration; their requirements are very simple, and they may be readily grown by amateur or professional gardener.

Within recent years *Primula Obconica* has been brought to a great state of perfection by seedsmen who have devoted special attention to this *Primula*, with the result that they have brought forward a strain producing abundantly flowers of great size and substance, carried on stout stems well above the foliage, with a wide range of colours, the most effective being pale pink, bright pink and crimson. It may be said of *Obconica* that it is not universally looked on in such a rosy light; this subject, when fully grown, being at times charged with causing a form of rash or slight skin irritation on the hands of those handling the plants. Well, to speak of this *Primula* as I have found it during thirty or more years that I have grown it, I have not personally felt the least ill-effect from handling it, or had under my notice any well authenticated case of irritation caused by handling the plants. Various human ailments frequently have ascribed to them a cause quite remote from the correct one, and may not the same apply where the *Primula* is blamed. However, any one dubious in the matter may keep the arms covered, and wear a pair of gloves when potting the plants; this will prevent any ill-effect.

Primula Obconica is a perennial, and the same plants may be grown over a number of years if desired, though it is a good plan to raise a batch of seedlings, say, every second year, selecting

the best flowered plants to be grown on over succeeding years. Seeds may be sown at end of January, or through February, and flowered during the ensuing winter, or seedlings may be raised at the present time, and not allowed to flower for first season; the seeds should be sown in pans or shallow boxes on a mixture of loam, leaf mould, and sand, kept moist and shaded until the seedlings appear. The seeds germinate most freely if placed in a temperature of about 60°, when sown early in the year; sown at present time, the temperature of a warm greenhouse orinery will suit quite well. As soon as the seedlings appear, they should be kept quite near the glass, fully exposed to light and all but very strong sun. When large enough to handle, they should be pricked off into shallow boxes filled with material similar to what they were raised in, still keeping the plants close to the glass, and in a moderately warm temperature. When the seedlings are well established in these boxes, they may, if desired, be removed to a cold frame, though they will grow more freely in a somewhat higher temperature. Before the plants become crowded in the boxes they should be potted into 2½ inch pots; for this potting use a compost of light loam 2 parts, leaf-mould 1 part, with a sprinkling of coarse silver sand, and a proportion of bone meal, say, at the rate of a 3-inch potful to a bucket of compost. If heavy loam must be used add a greater proportion of leaf-mould; after this potting, place the plants in a cold frame, which must be kept close and lightly shaded from sun, for three or four days, afterwards they must have abundance of air, and only be lightly shaded from hot sun during middle of day. If they can be given a situation where the sun is off the frame early in the afternoon this is a considerable advantage, and the frame may be closed about 4 p.m. When the plants have these pots well filled with roots they should be moved into 4-inch pots, in which they should remain throughout the following winter. To the compost for this potting, a part of rich, thoroughly decomposed manure should be added (dried cow dung rubbed through a ¼-inch sieve is the best).

Old plants that have been flowering through the winter should, after removal from the conservatory, &c., be placed in a cold frame, after clearing them of any remaining old flowers and every young spray that may be throwing up, also clear them of exhausted or yellowish foliage; water them sparingly, and give a moderate amount of air according to weather conditions prevailing. Do not allow the plants to become dry, and persistently pick out all flowers that may show; keep them in this manner

for two or three weeks, when the stock may be taken in hand for re-potting. Plants such as past year's seedlings that have proved of sufficient merit to retain and plants in 4-inch pots should have the ball slightly reduced and re-potted—medium growers into 5-inch and more robust growers into 6-inch pots. Plants that have flowered in 5 and 6-inch pots may be divided and repotted into such a size pot as will grow them through the whole season, not exceeding 6-inch pots. To divide the plants into two or three parts, as desired, the plant should be laid

ball completely, and commence giving more or less air daily, with much reduced shading. When the plants are again growing freely give abundance of air, and only shade with scrim canvas or some light material from strong sun. When the pots are well filled with roots commence the application of some stimulant, preferably some reliable horticultural manure, using the fertiliser in the powdered state, and when applying, gently raise the foliage (so as not to break the leaf stalks) and apply the powder with a spoon. The fertiliser must be continued



WATER POOL IN THE ROCK GARDEN AT CURRAGH GRANGE.

on its side, and cut the crown clean through with a sharp knife, then carefully divide the ball, removing all loose soil. For re-potting use a mixture of 2 parts loam, 1 leaf soil, 1 of rich decayed manure (rub the manure through a $\frac{1}{2}$ -inch sieve), a sprinkling of coarse silver sand, a little finely-pounded mortar rubble and bone meal at the rate of a 3-inch pot full to a bucket of compost; if soot is available, add about a handful to a bucket of compost. After re-potting, place the plants in a cold frame, keep the frame shut up for four or five days and shade from sun. Give the plants a sprinkling of water overhead with a fine rose-can each afternoon, when removing the shading, about 3 or 4 p.m. After the lapse of four or five days give the plants a heavy watering to moisten the

throughout the season at intervals of about a fortnight. Some plants are so persistent in flowering that they commence throwing up flowers a few weeks after re-potting; these flowers must be as persistently removed, until the time is approaching when the plants are required to flower; discontinue shading as the summer wanes, and with the advent of long and cooler nights remove the plants to a moderately dry and warm atmosphere.

Primula Malacoides is an annual primula, and of much lighter habit than *Obconica* when in flower, producing abundantly dainty sprays of pale mauve flowers, well-grown plants being very effective for decoration; the flowers are also very useful for decoration in a cut state. Seedlings may be raised through the early

months of the year, and as late as June or July, for succession, in a similar manner to *Ohe-mea*. This *Primula*, after being established in 2½ inch pots (or earlier if desired), may be grown out of doors, stood on a bed of ashes or sand, in any light position, but shaded by a wall, hedge, &c., from strong sun; it may also be grown on in cold frames, but must be sparingly shaded, and great care taken to avoid over watering or stagnant moisture. For the final potting use a compost of loam, leaf-mould and manure, with coarse silver sand and a little bone manure or meal; the weaker plants may be flowered in 3 and 4 inch pots, the stronger ones in 5-inch pots. Whatever size pot is used, some stimulant must be applied after the pots are filled with roots, and continued throughout the season.

This *Primula*, though often described as hardy, is very rarely met with in a satisfactory condition, grown altogether outdoors.

Early Flowering Chrysanthemums.

During recent years no flower has attained a larger measure of popular favour than the early flowering *Chrysanthemum*. This is not at all surprising when we consider their infinite

variety of colours and the ease with which they are cultivated, also the long period which they may be had in flower provided a judicious selection is made.

Chrysanthemums are by no means exacting in their requirements, and will grow and flower in most soils and situations; at the same time they are worthy of the best treatment, and will amply repay one for any extra care and attention expended on them.

About the end of the present month, or any time during May, according to weather conditions, is the most suitable time for planting. Whether planted in beds, borders, or on an open brake in the kitchen garden, a good dressing of well-decayed manure should be applied, and the ground deeply dug. Previous to planting out, the young plants should be given a good watering; if planted in a dry state an unnecessary check will be sure to follow. When the plants are four or five inches high the points of the shoots should be pinched out and again at

intervals during the early summer. Stopping should be discontinued about the end of June. A sharp look out for slugs should be kept, and occasional dustings of soot given for some time after planting, as these pests have a particular liking for the young and tender growths. Every plant should be staked and securely tied, when large enough. This important operation is often delayed too long, with the result the stems get broken or twisted, thereby spoiling the natural beauty of the plants.

The varieties of autumn-flowering *Chrysanthemums* are so numerous that difficulty is often experienced in making a selection. Unless one goes in for exhibiting, too many varieties are not advisable; a far better display can be had by

growing, say, about six good varieties in larger quantities.

The following selection can be relied on, and are the pick of the various colours. Taking white first, pride of place must be given to Framfield Early White, as it has all the qualities that go towards making a perfect flower.

Holmes' White, Market White, and Wells' White Masse are well known, and worthy of a place in any collection.

Roi des Blancs, pure white, and Perle Châtillonnaise, creamy white tinged with pink, are

also two first-class varieties, and come in bloom somewhat later in the season than the above, therefore should be included for that reason.

Yellow—Leslie is buttercup yellow, comes in bloom early, and is one of the best of this colour.

Horace Martin and Carrie are both excellent. Elstob, yellow, is an improved Horace Martin, from which it is a sport. J. Bannister is not a distinct yellow, as it is shaded reddish copper, a first class variety in every respect.

Bronze.—Abercorn Beauty is a brilliant bronze, with large reflexing petals.

Bronze Goacher and Bronze Normandie are both good varieties, the latter coming in flower about the end of August. Diana, deep bronzy orange tipped with gold, a lovely shade. Nina Bick is reddish bronze on opening, but loses the former colour when fully expanded, splendid for garden decoration. A few other good varieties in various colours are Crimson, Marie Masse, Ethel Blades, chestnut scarlet, one of the best for all



PRIMULA DENTICULATA CASHMIRIANA
In the Garden, Arthing, Blackstock, Dublin, see p. 61.

purposes: Goacher's, crimson; Jemmie, large purple; Normandie, a lovely shade of pink; and Polly, deep orange.

In a short article of this description it is impossible to enumerate all the good varieties obtainable, neither would it be advisable to do so for obvious reasons. And I am well aware that some first-class varieties have been omitted, also the higher priced novelties.

I hope these few notes will be of some little help to those who are in any way interested in the culture of the very appropriately named Queen of Autumn Flowers. C. A. H.

The Alpine Garden.

WHAT a charming effect can be got by plant-

ing on sloping ground *Polygonum affine* (*Brunonis*), *Muscari* "Heavenly Blue," the beautiful and restful red-brown of the *Polygonum* foliage making a perfect groundwork for the blue *Muscari*, and in summer its deep green leaves and spikes of rosy flowers are most attractive, and completely hide the withering foliage of the *Muscari*.

The severe spell of weather seems to have done little or no harm in the garden; the precocious buds and tender young shoots produced in mild January for the most part have escaped damage.

Some new rockwork was constructed during the month, but has not been planted owing to the cold, damp condition of the ground. A few small shrubs, however, were planted amongst the rocks—*Cryptomeria globosa* nana, *Cupressus nana argentea* and *Cupressus tamariscifolia*, and others.

By planting a few choice evergreen shrubs in new rock work the crude effect is immediately lost; planting for immediate effect with shrubs which in one or two seasons will have hopelessly outgrown their positions and dwarfed the surrounding stonework is never to be recommended, and since there are so many suitable subjects for the purpose on the market it is quite unnecessary.

Seeds have been sown during the month, and

although propagation by cuttings is a quicker and, I think, surer method, it is unwise to neglect the seed sowing; interesting natural crosses often appear, and besides there are many things needed in the Alpine garden every year which come very freely from seed—for example, *Arenaria montana*—and there are many biennials like *Thlaspi bulbosum* and *Erysimum linifolium* which germinate very freely.

Primulas, like *P. Mooreana*, *P. Cockburniana*, and the numerous others suitable for the bog garden, are best propagated from seed.

We sow in 5-inch pots, filled to about half way with pot crocks, a layer of fibre and then, the compost suitable to the seed; water the pot before sowing, and cover the seed very lightly—never more than the depth of the seed sown

is a good rule. The pots are put in a seed frame, which is kept shaded, and when the seedlings appear the pots are removed to a light airy frame, and when fit to handle are pricked out into boxes or pans.

A corner of the Alpine house is reserved for a few very special seeds, such as home crosses or rare collected seeds, and the pots are kept covered with a small pane of glass and watered by being placed in a basin half full of water and letting the



ANEMONE NARCISSIFLORUM
In the Rock Garden, The Bush, Antrim (see p. 61).

moisture gradually work up.

In the garden the prevailing colour is pink—*Erica carnea* and *Sax. oppositifolia* being both in their hey-day. The early spring bulbs are also giving good colour effects—*Crocus*, *Scillas*, and *Chionodoxas* in great profusion on the "hills" are most effective, especially a hill slope of purple and white *Crocus* planted in dense masses.

Amongst the other bulbs noted in flower are *Scilla bifolia alba*, *Tulipa Kaufmanniana* and *Tulipa pulchella*, *Chionodoxa Lucille*, *Narcissus cyclamineus*, and in the moraine, *Narcissus triandrus albus*.

In the bog garden the *Soldanellas*, both purple and white, have been a mass of flower for the last month. It is the first time I have ever seen *Soldanellas* flowering freely in the open ground; it would be interesting to know if they are usually shy flowers. M. E.

The Rose Garden

Some Seasonable Notes

THE premature growth that started in the early weeks of this year, sending forth those luscious green and crimson shoots so cheering to the Rose grower, has received a sad set back from the frosts and cold rains of February and early days of March. In some districts, and in not even the most exposed, the consequences have been little short of disastrous. Fresh growing laterals have been totally withered up, and their utility at least for an early season sensibly depreciated. This bad effect has been more noticeable in the case of the climbing varieties of the Teas and Hybrid Teas, and will compel a revision of the pruning that may have been postponed. With Roses such as Lady Ashdown, La France, Papa Gontier, &c., adapted as climbers; this early growth generally does not affect all the eyes on the branch. On these branches trained against walls or trellis work it will be found that not even all the uppermost buds have thrust forth shoots, and the under buds few, if any; and here judicious pruning will, in a great measure, make up for the loss caused by the harsh weather. Frost-bitten shoots should on no account be allowed to continue on Rose trees. The check received will have a permanent effect, and the growth will not have the stout, sappy constitution necessary to produce the quality of bloom required. The dwarf Roses will not suffer so much in proportion, as the pruning will have been more vigorous, and the damaged portions should have been cut away in the ordinary course.

At a time such as this, one can see the good effects following judicious care in planting. No weather is more trying on Roses than one of persistent cold rains. Unless the drainage of the Rose plot has been regulated the ground becomes sodden, and militates against the welfare of the plant. This collection of excessive moisture at the roots has a more deleterious effect on even the hardiest of Roses than a season of hard frosts unaccompanied with rains.

All pruning should be finished off this month, and the Teas should be also attended to and put in order towards the end of the month. Except in unusually mild seasons, early pruning is of not much advantage. There is little real growth until the ground gets free from the cold of the

winter months, and the customary night frosts become ineffectual.

Any farmyard manure used in mulching established Roses should be forked in now, and the Rose beds made tidy for the summer. Manure left uncovered becomes rather unsightly, but is all the more beneficial if covered up and incorporated with the soil.

The strong winds of the past months will have loosened the hold of many of the Rose stocks, and cavities frequently may be formed, which should have been prevented by constant attention. But the first opportunity of dry weather should be taken to give a close inspection of the plants and have the soil about them made firm. This is all the more necessary when recent planting has been done in ground not of proper dryness, and can be repeated all to the benefit of the Rose. The best results will follow from growth in firm soil as long as the top layer of soil is kept loose and finely broken to prevent summer evaporation.

Efficient spraying should be carried on from this time. The rose grub will soon make its appearance, and, if undetected, will play havoc with the young shoots. In many of the old established plants may be found wintering larvae of various kinds waiting for their day. The saw-fly maggot will be here, and the winter moth caterpillar will add to the trouble of the Rose grower. Any of the well advertised insecticides may be used, but for convenience and good results, one could not do better than to spray with hot water, to which may be added a tablespoonful of paraffin to the gallon. The water, of course, must not be boiling, and yet not luke-warm; the exact temperature will vary with the heat of the day, but never so hot that one cannot hold the hand in it without discomfort. This both efficiently clears off pests and cleanses the shoots.

Briers that have been budded last season will need attention. With the Standards all up, cropping suckers should be pulled up, and any laterals nipped, and the budded laterals cut in close to the bud. The growth of the young bud—the future Rose plant—must be secured to a stake to avoid disaster from squalls.

It is not yet too late to do some planting, but all the more attention will be necessary, as during dry weather a daily syringing of the bushes should be done to encourage the rise of sap. With Standard Roses late planting is more risky; being more exposed, they suffer from the consequent dryness, but judicious care will overcome all obstacles.

J. A. F. G.

The Arboretum.

Up to the time of writing these notes—namely, the middle of March—the weather has been of the worst possible description for getting on with work. Digging was out of the question until within the last few days, consequently there is considerable leeway to make up in finishing shrub beds, borders and nursery quarters. However, despite shortage of labour, a week's good weather will see most of the digging and forking disposed of for this season.

Rhododendron beds, as well as single specimens, will benefit greatly by a mulch of half-decayed leaves applied now before drying winds and hot sun replace the recent spell of cold, wet weather. Rhododendrons should be planted very shallow, and consequently forking about the roots is detrimental. It is better to simply clean the beds of any weeds which may be present and apply the leaves three or four inches deep; these, while keeping the fine roots moist, yet allow sufficient air to percolate between them to keep the roots healthy.

Bamboos are gross feeders, and rejoice in rich, moist soil, therefore a dressing of decayed manure should be applied now and pointed in. If it is desired to increase any of the species, pieces of rhizome with several culms attached may be taken off while the manure is being applied. The detached clumps may be grown on in a suitable part of the nursery if they do not appear strong enough to plant permanently, but in most cases they may be put in their permanent stations right away. Any new species wanted for the collection should be purchased and planted towards the end of the month, treating as advised above.

By the time April is well advanced the weather should have improved sufficiently to allow of tender shrubs, which have been grown on in pots, being planted out. In a large collection of trees and shrubs there is always a considerable number not altogether hardy as well as many that are being tried perhaps for the first time; also some shrubs, hardy enough in themselves, flower either very early or very late, and the flowers frequently suffer from adverse weather conditions. For these and others the protection of a wall is very desirable. In previous notes *Lonicera Standishii*, *Chimonanthus fragrans* and *Jasminum nudiflorum* have been mentioned as early flowerers benefiting by being planted against a wall, and among others which flower late and benefit similarly may be mentioned *Caryopteris mastacantha* and *Escallonia montevidensis*.

Ceanothuses are very beautiful shrubs, somewhat tender in some localities, though the majority of them are hardy in a good many

districts in Ireland. It may, however, be advisable to give them a wall in some cold localities, and in any case they make very beautiful wall shrubs. They are divided into two sections—evergreen and deciduous—and are mostly blue-flowered, though there are one or two white flowered species and hybrids with pink and rose-coloured flowers. Ceanothuses are bad transplanters, and are best put out from pots. April is a good month to plant, and any one contemplating adding a few to their collection could not do better than obtain them now; a sunny wall and well drained soil will suit them admirably, and in a couple of years or so they will make fine plants and flower profusely. Of the evergreen species with blue flowers, *Ceanothus rigidus* (slow growing), *C. thyrsiflorus* and var. *griseus*, *C. divaricatus* and *C. papillosus* are beautiful. *C. azureus* is about the best of the deciduous species, but among the hybrids there are many very beautiful varieties.

The following is a selection:—Arnoldi, pale blue; Gloire de Versailles, very fine rich blue; Indigo, deep blue; Leon Simon, pale blue; Perle Rose, pale rose; Ceres, rose coloured; Gloire de Plantières, dark blue; Pinguet-Guindon, dark carmine, and many others.

Solanum jasminoides is a lovely shrub for wall culture, and soon covers a large space, flowering profusely and continuing late into autumn; the flowers are pure white. *Clematis indivisa*, a native of New Zealand, is well worth trying on a sunny wall. It is usually grown as a green-



TRILLIUM GRANDIFLORUM IN THE ROCK GARDEN, THE BUSH, ANTRIM (see p. 61).

house climber, where it is much admired, but good specimens are known outside to the south of Dublin, and it has lately been tried on a sunny wall in the Botanic Gardens at Glasnevin, where it looks like becoming established. The clusters of white flowers are very pretty; the variety *lobata* is said to be better than the type.

Clematis Armandi, a white-flowered evergreen species introduced from China, has not proved quite hardy in North Dublin, and is now being tried on a wall, where it may do better. A spare plant, which was "heeled in" close to a shady wall and left there, flourished much better than any which were more carefully dealt with.

Every autumn a great many cuttings of rare and tender shrubs are inserted in pots and placed under handlights or are simply dibbled into a cold frame. Most of these are now rooting, having callused during winter. Before the pots get too full of roots the rooted cuttings should be potted off singly into small pots—the tender species to be shifted into a size larger later on, the harder kinds to be planted out in sheltered nursery quarters. All shrubs, however, which are known to be bad transplanters should be kept in pots: of such are Ceanothuses, Cistuses and practically all leguminous shrubs, such as *Cytisus*, *Genista*, &c.

Hints to Amateurs.

By R. M. POTROCK.

OWING to the excessive wet, it has been impossible to attend to lawns. Where possible now this should be done, and a good thorough rolling is advisable before cutting. This saves the mowing machines, as it spreads the worn casts and levels the rough surface.

Tropaeolum tuberosum makes an excellent temporary covering for walls, arches or trellis. It is, as its name denotes, a tuberous plant which dies down each autumn, springing up again the following year. These tubers may be planted now wherever a light covering is wanted. Growth is rapid, and in a very short space of time tall shoots will run up. Being a native of Peru it seems to dislike cold, damp soils, and if left in the ground it gradually disappears, but in warm soils, in a favourable situation, there is no difficulty in keeping it. The orange-red pendulous flowers are produced late in the summer.

Annals may be sown any time now during the month, as advised in the March notes, and any that are fit to plant out from the early frame sowing, may be put in their flowering quarters.

Sweet Peas raised in pots will probably be ready, and a sowing in the open may be made.

There is perhaps no flower quite as popular as the Violet, its delicious scent appeals to everyone, and it flowers at a time when there is little else. When snow lies on the ground and the cold harsh winds of February and March blow, if a frame of even small proportions is available, these flowers may be had. Now is the time to lift, divide and replant. They are not fastidious, they only ask to be given good deep rich soil in semi-shade, and not allowed to suffer from drought. Divisions from the old plants are the best, taking the young well-rooted crowns and discarding the old hard woody portion. These should be planted certainly 16 inches every way in well prepared ground. Sixteen inches may sound a great distance, but when growing well a good Violet plant will cover 12 inches easily, and space must be left for moving through the plantation. If the weather be dry at planting time, see that the young plants are well watered, and that they get no check from lack of water. Any cow manure used in the preparation of the soil must be thoroughly well decayed, otherwise the plants will produce rank leaves only and few flowers. It is no use trying to grow Violets in light dry soil or in the full blaze of the sun. During the summer keep all runners removed. If allowed to remain attached to the plants, they only exhaust the old plant and make it so weak that it will not be able to produce the desired amount of bloom at flowering time. The work of cutting the runners and forking and hoeing between the plants can be done in the one job. Several forkings will be required, and the runners grow very quickly, but there is nothing better for the plants than hoeing or forking, which prevents the soil caking on the surface and becoming hard. As to varieties, as a general rule Princess of Wales is the best out-of-doors single Violet. The flowers are large, stalks long, scent good, and the foliage good. The Czar is also a fine doer, but flowers are smaller. There were a couple of good varieties sent out by a Continental nursery which have much in their favour, but, as the growers are now "straffed," plants can neither be had, nor will they be recommended. Among the double varieties, Neapolitan

and Marie Louise still hold the premier place. Many growers root their Violet plants in a nursery bed, with the intention of transplanting them early in the autumn to the warmest and most sheltered spot in the garden, where they will get every ray of sunshine during the cold dark months. This is an excellent method where the space is available. All the double varieties seem to respond to frame culture freely, and are very much superior when grown under cover. Frames in which cucumbers or melons have been can be utilised for these double varieties, and so increase the supply of bloom. Care must be taken to have the plants as close to the glass as possible, and to ventilate freely on all possible occasions. It is want of proper ventilation which causes frame Violets so often to damp off, and growers often remark that they cannot keep their Violets healthy in frames. The habit of the plant is to grow close, and the leaves and stems are soft, so that any moisture lying about will quickly bring mould, and damp the flowers off. In many gardens where, not only in war time but at all times, rigid economy has to be practised, the Violets are planted on a raised mound, and on this mound the frame, possibly the only available frame, is put as soon as it is not required elsewhere, and there it remains until the spring.

Violets and Pansies may be planted out in their permanent quarters as soon as possible, and it is well to get this done before the hot dry weather sets in.

Beekeeping.

By PETER BROCK, Fairview, Enniskillen.

WITH April sunshine and showers come many flowers which bring bees and beekeepers alike into activity. Stocks should now be examined on the first favourable opportunity to ascertain how they have wintered, and to see how they stand for stores, of if any are weak or queenless. Unite weak stocks, so that two weaklings may make one good stock that will be ready to yield a good return from the first honey flow. As cleanliness is a very important factor in beekeeping, preparations should now be made to give hives a spring cleaning and painting, and to overhaul and put everything about the apiary into good order for the coming season. For spring cleaning a spare hive is necessary, as each hive can be cleaned and painted and stocks transferred in rotation till all have been cleaned. The brood chamber should have a kettle of boiling water poured over the side walls and floor, then, with a steel cabinet scraper, all propolis and brace comb can be easily and quickly removed; it should then be rinsed with a quart of hot water to which two teaspoonfuls of Izal have been added. The hive may then get a coat of paint. Immediately before transferring bees into it, the brood chamber should be again rinsed with Izal emulsion—at a strength of two teaspoonfuls Izal to one quart of hot water. Izal is a powerful germicide, and bees do not resent it as they do carbolic.

Stimulative feeding may now be started, the object of which is to induce breeding or to preserve the lives of stocks that are running short, so that each may be fit to store surplus honey at an approximate date. Where honey is plentiful, development may be hastened by bruising three or four square inches of capped stores with the blade of a table-knife every few days from which the bees can help themselves. If there is a

scarcity of sealed stores give summer syrup made from 3 lbs. of cane sugar (Tate's No. 1 cube for preference) to one quart water, to which twelve drops of I2al may be added a few minutes after removing from the fire. Begin this feeding by giving about half a pint of syrup the first night, then continue giving a small to a full wineglassful every night. All feeding with syrup should be done at night, and the syrup should be given at fully blood heat, and the feeders covered with soft flannel or other covering to preserve the heat. Bear in mind that as breeding progresses more covering of heat-retaining material is required during April and May than would be sufficient to protect them safely through our hardest winters.

Brood-spreading may be resorted to towards the end of this month by moving the outside comb of brood into the centre of the brood nest. This should not be repeated oftener than once a week. On no account place either an empty comb or sheet of foundation in the centre of the brood nest before the hive is well crowded with bees, and, even then, unless sufficient supplies from outside are available, feeding may be necessary to maintain the temperature to promote breeding.

Stocks on fixed combs in straw skeps or boxes intended for transferring into bar frame hives should now be stimulated by feeding every evening to get them into a fit condition for setting up on frames towards the end of this month or beginning of next. The weight of the skep or box will afford a fair guide to the amount of feeding required. Some small hives that are well supplied with stores and are generally the first to open the swarming season become fit for transferring early without stimulating. Such stocks should be fed slowly from a small hole in the top of their skep or box, and the feeder and hive should be well protected with warm coverings. Transferring to frames should not be attempted till the hive from which they are being transferred is crowded with bees. To ascertain the right condition, gently lift the hive on edge early on a cool morning, and if the floor is well covered with bees the stock is ready for placing over frames.

If the necessary supplies for the coming season have not been ordered, they should be sent for at once. The preparation of crates and wiring of frames for the coming season should be attended to on wet days, when nothing can be done on the land, or it may be done in the evening. There is sometimes very little time to attend to this kind of work during May, when the bees may require immediate attention.

Notes for Novices.

BROCCOLI AND WINTER GREENS.—Now is the time to sow seeds to ensure a good supply of these vegetables during next winter and spring. Choose a border that is well sheltered from north winds and one in which the soil is not over rich. After the ground has been brought into good working order, by forking over and levelling down, tread the soil moderately firm. Draw out drills at one foot apart and one half inch deep, and sow the seeds evenly therein. Label each variety and fill in lightly with fine soil. The main sowing of Brussels sprouts and leeks should be sown at the same time and in a similar piece of ground.

Arrange a garden netting over the seed-bed to protect the seedlings when they appear from the ravages of birds. For succession the following sorts may be sown now:—Early London and Veitch's Autumn Giant cauliflower; Michauxias White, Christmas White, Frogmore Protecting, April Queen and Methven's June broccoli; Asparagus and Cottage's Kale, The Bullet, Brussels sprouts and Emperor leek.

PEAS.—During the month a few rows of peas, according to demand, may be sown at intervals of a fortnight, to keep up a regular succession of green pods during the summer. Draw out the drills with a draw hoe, and continue the method previously advised in a former issue. Telephone and Eureka are two suitable varieties, both producing a prolific crop of well-filled pods of fine colour and quality.

BEANS.—Sow another lot of broad beans, and towards the end of the month the first sowing of dwarf French beans may be sown with safety. For this sowing of the latter bean it is an important item to select a light, rich and well-drained soil, having a southern aspect, in order to obtain good results. Drills should be drawn out at two feet apart and two inches deep, and the seed set in along the drills about four to six inches asunder. Canadian Wonder is one of the best for summer use. For an early supply of runner beans, it is best to raise the plants under glass. Procure three inch pots and fill up with fairly good sifted soil. Sow the seeds—one in the centre of each pot—and stand in the greenhouse or a warm frame until the seedlings appear well through the surface. Transfer the plants to a cool frame, but admit air cautiously to begin with, as the plants are easily chilled at that stage of growth.

CARROTS.—To do this vegetable well, it requires a deeply-dug, rich sandy soil in which no fresh manure has been added for twelve months. Choose a fine day, and fork the ground over to the depth of four inches, breaking it down as finely as possible. Apply a dressing of soot, lime and wood ashes, and in a few days rake the surface soil fine with a wooden rake. Draw out shallow drills at twelve inches apart and sow the seeds therein, thinly and evenly. Fill in lightly with soil, and level off the surface with a short-toothed iron rake. New Intermediate or St. Valery are the best for the main sowing outside.

LETTUCES AND RADISHES.—Continue to sow a few seeds of each on a warm border every ten days or so, to keep up successional fresh supplies during the summer. In dry weather water frequently.

VEGETABLE MARROWS.—These are best sown and grown on in pots for future planting out in the open. Select three-inch pots, ensure sufficient drainage, and fill up with fine soil to within one inch of the rim. Place one seed in the centre and cover with one-half inch of soil. Stand the pots in a temperature of 55°. As soon as the first rough leaf is made, remove the plants to cooler conditions, admitting air cautiously unless mild weather prevails. When fairly well rooted transfer to five-inch pots, using a compost of two parts loam, one part leaf-mould and one part dried cow manure, with the addition of a little sand. Put a stake at each plant, and tie loosely with raffia. Two good varieties are Moore's Cream and Long Green.

FRUIT NOTES.—As there will be many fruit trees coming in bloom during this month, every

attention, as far as possible, should be given to pollinate the flowers when fully expanded. By sharply tapping with the hand the stem and main branches on wall and young orchard trees in the middle of the day a great deal of good may be accomplished in a short space of time. Trees that are growing against walls should be examined occasionally in order to ascertain if they are in need of moisture at the roots. If allowed to become over-dry at this early stage the fruit buds are liable to drop off. Plum and cherry trees are often infested with fly just as the young leaves are unfolding. Spraying with quassia extract, according to directions given on the tin, is a good remedy. This operation should be done in good time, and the cultivator cannot be too particular in applying the insecticide to the undersides of the leaves. Young strawberry plantations must be hoed frequently to keep the surface soil in an open and friable condition. Constant hoeing has a wonderful effect on the growth of young plants.

ANNUALS. Many kinds of annuals may be sown now in the open ground where they are to flower. They can be sown either to form clumps in the herbaceous border or sown out in lines in a border by themselves. Whatever method is adopted, the chief point towards success is to have the soil in good tilth. For most annuals a quarter inch of soil is quite sufficient depth to cover the seeds. Slugs in particular have a great liking for most varieties after germination takes place, so it is well to err on the safe side by dusting frequently with soot and lime in the morning and evening. Thinning should take place as soon as the seedlings are large enough to handle. Occasional waterings will be necessary until the plants are well established. The following are a few desirable kinds, and can be ordered from the seedsmen in various shades of colour: Godetia, Candytuft, Nicotia, Clarkia, Coreopsis, Lavatera, Dimorphotheca, Mignonette and Shirley Poppy.

Sweet Peas, Early Flowering Chrysanthemums and border Carnations, provided they have been well hardened, may be planted out in their permanent quarters towards the end of the month. Insert a few short twiggy branches around the Sweet Pea plants. Zonal Geraniums and other bedding out plants should now be gradually exposed to open air conditions, but always have protecting material in readiness at night in the event of extreme cold.

Violets that have been flowering in frames for the past few months should be lifted and divided into single crowns, so that they can be planted out in a moist shady position in the kitchen garden. Previous to lifting, see that the plants have been well hardened. Select only the strongest, and plant out in rows fifteen inches apart. Apply sufficient water in dry weather. Frequent syringings overhead will help to ward off attacks of red spider, and thus keep the foliage in a clean and healthy condition.

This is a good time to clip and trim up box-wood edgings. An edging four inches high, and kept neat and level, is always an attractive feature in a garden. Larger box edgings generally prove an excellent harbour for slugs and insect pests. All blanks may yet be filled up, provided the roots of the plants are kept moist for some time afterwards. Rolling and mowing of the lawns and grass edgings should be given due attention from now onwards.

M. D.

Obituary.

William Wells.

THIS veteran Chrysanthemum grower and raiser has passed away, to the great regret of a wide circle of friends. His fame as a grower extended far beyond the confines of his own country, and some of his finest displays were made in foreign



(By courtesy of)

[*"The Gardener."*]

THE LATE WILLIAM WELLS.

countries, but now, alas! the ravages of war have dealt the peaceful art a heavy blow. Mr. Wells also visited the United States, and subsequently took up Carnation culture on the American system.

In addition to Chrysanthemum novelties of his own raising, Mr. Wells distributed the one-time famous Calvat seedlings raised in France and the Pockett seedlings raised in Australia, many of which will still be remembered by gardeners.

The firm of Wells & Co. has many other activities, and annually produces large stocks of Michaelmas Daisies, Pentstemons, &c., &c., and the name of William Wells will not soon be forgotten so long as autumn flowers are grown. Readers of IRISH GARDENING will, we are sure, extend their sincere sympathy to the widow and family in the great loss they have sustained.

Major Hickman.

THE friends of horticulture throughout Ireland will learn with sincere regret of the death of Major S. C. Hickman, D.L., of Fenloe, New-

market-on-Fergus, Co. Clare. The sad event took place at his residence on Saturday, 26th February, after a brief illness. He had caught a chill, but hopes were entertained of his speedy recovery, when, quite unexpectedly, he succumbed to heart-failure. The deceased gentleman was a member of an old Clare family, a gallant soldier, and long identified with the public life of the county. He was a well-known and a very keen horticulturist, and was a frequent and successful exhibitor at the leading shows in Ireland. As an exhibitor of Daffodils he was hard to beat, and scored more than once at the Spring Show of the Royal Horticultural Society, Dublin, winning in 1914 the challenge cup presented by the Right Hon. Lord Ardilaun for a collection of fifty varieties. The Daffodil was his favourite flower, and it may be said he possessed one of the finest amateur collections in Ireland. As a fruit-grower also he achieved considerable success, as his many prizes won at the Dublin and other fruit shows, and especially at the Clare Horticultural Society's superb exhibitions, amply prove. He took a very warm interest in the welfare of the Clare Horticultural Society, and was one of the largest exhibitors and prize-winners at its three annual shows. His exhibits were always of a very high order; but it was at the Ennis Spring Show that he shone pre-eminently. There his Daffodils were the principal attraction of the show, and it is hard to think of a spring show without the gallant major. His presence will be greatly missed.

Soon after his coming to Fenloe, the beautifully-situated family seat, he and Mrs. Hickman inaugurated a show for the encouragement of home industries and the culture of flowers and vegetables among their employees and the cottagers and artisans in the Newmarket district; it soon became one of the most popular functions in the county, and it was interesting to notice the marked improvement in the exhibits in every section of the show from year to year. The show was always held on the 15th of August, and was patronised by large crowds of people who never failed to spend a most enjoyable day in the beautiful grounds of Fenloe. The passing of this show will be keenly felt by all classes of the community. Major Hickman's death will be a decided loss to the county and the cause of horticulture, and in the ranks of the Clare Horticultural Society it creates a gap which it will be very hard to fill.

The deceased was a distinguished soldier, and was accorded the thanks of Parliament for services rendered in Egypt.

R. S.

Primula denticulata cashmiriana.

THIS is one of the best forms of the very variable *Primula P. denticulata*. When in its best form the "heads" should be large, the flowers of a lilac purple, and the flower stem and under sides of the leaves thickly covered with a golden powder. A moist, half-shady position in rich soil suits it admirably, and division after flowering is beneficial, especially if the "crowns" have become crowded. Seeds also form a means of increase, but not all of the seedlings come true, many showing a tendency to revert to the type,

lacking much of the golden powder, and proving inferior in size and colour of flowers: at the same time good forms can often be selected from among them.

Anemone narcissiflorum.

THIS is one of the most charming of all the *Anemones* flowering in May and June and captivating everyone with its beautiful white flowers, borne in umbels over feathery light green foliage. A moist spot in rich soil is necessary to its proper development, established plants making fine bushy specimens carrying a large number of flowers. The height varies from a foot to 18 inches, according to the vigour of the plants. Seeds are produced fairly freely, and should be sown as soon as ripe in moist sandy soil. The resultant seedlings may be left where sown till the following spring, when, as signs of growth are apparent, the stronger ones may be picked out in a suitable nursery bed for future planting. Some of the seeds may not germinate at once, so that the seed pan or box should be kept for some time to ensure all the seeds germinating.

The Trillium Wood Lilies.

THESE are interesting and pretty plants rejoicing in a moist, shady position, and are admirably adapted for planting in suitable parts of the rock garden or in the bog.

Sandy peat or leaf soil is usually recommended for planting, but the stronger growers, at least, will flourish in stiff, moist soil, whether of a peaty nature or not. The chief essential seems to be moisture at the roots, for if this is present they will bear with impunity most of the sun we get in this country.

Some of the species are less robust than others, and they will repay some extra care in selecting a position and preparing a suitable sandy compost to grow them in.

By far the finest species is *Trillium grandiflorum*, an old and well known plant in gardens. It is commonly called the Wake Robin, and bears large pure white flowers above the whorl of three leaves. This is an easily grown species, flourishing in good heavy loam as well as in peat. There is also a rose-coloured variety.

T. sessile is a robust species, but in the type the flowers are of a dark purple colour, not very attractive: in the variety *californicum*, however, the flowers are white, greatly increasing its value as a garden plant. *T. californicum* Snow Queen is doubtless a selected form, and makes a very handsome group when bearing its pure white flowers.

Trillium cernuum, with drooping white flowers, is a pretty plant, while *T. erectum* is one of the dark purplish, red-flowered species, not so showy as the white-flowered species, but interesting to the true plant lover. *T. erythrocarpum* is one of the smaller growers, bearing white flowers with a reddish purple blotch at the base of each inner segment.

T. stylosum is another of the smaller growers, bearing flowers of a rose or pink shade.

Among others not so often seen in gardens are—

T. nivale, with white flowers and spotted leaves; *T. ovatum*, flowers white; *T. petiolatum*, with brownish-green flowers; and *T. recurvatum*, with purplish flowers and mottled foliage.

Planting is best done in autumn, as growth commences fairly early in spring.

INDIAN SHAMROCK.

Appointment.

MISS MAY CROSBIE, of Riversdale, Dundrum, who worked in the Royal Botanic Gardens, Glasnevin, and since then has worked steadily at gardening, has now been appointed manager of Robertson's Bulb Farm at Rush, Co. Dublin. Miss Crosbie has done considerable work among bulbs of all sorts, and readers of IRISH GARDENING will remember that she wrote the Notes to Beginners in that paper for the year 1911, and will, we are sure, wish her success in her new post.

Review.

The Journal of the Kew Guild.

Kew men in Ireland will welcome the appearance of this excellent journal which, while recording the doings of present Kew men, also keeps in touch with hundreds who, having passed through a period of training many years ago, are now scattered the wide world over. Thus, through the medium of the Journal, we keep in touch with friends of long ago and recall some of the happiest years of our lives. The frontispiece is a photograph of Miss Matilda Smith, known to most Kew men by name only as a brilliant botanical artist and member of the Herbarium staff. Not the least interesting part of the Journal is that devoted to letters from Kewites abroad; thus Mr. W. Head writes of a "Trip in Fair Kashmir," and Mr. H. F. Macmillan, F.L.S., sends "Stray Thoughts from Ceylon."

"Kewites in the Far East" is the title of Mr. E. H. Wilson's contribution, and in it he traces the record of Kew men in the East from the time of David Nelson, who accompanied Captain Cook on his voyage round the world (1776-1780), down to the present time, when we find Kew men still doing yeoman service in Eastern lands. Other interesting letters are "Impressions of the Panama-Pacific Exhibition," "Agriculture in Nigeria," and "A Kewite with Kitchener's Army," by Sergeant Walter Dunk.

The record of Kew men who are "doing their bit" in the war is something to be proud of. Since the war broke out, we learn, 105 members of the staff and permanent employees have joined His Majesty's Forces from the Gardens. Of these a number have made the great sacrifice, including Mr. C. F. Ball, late Editor of IRISH GARDENING; W. H. Morland, late of Edinburgh Botanic Gardens, and H. J. Loughurst, who was at Kew when war broke out.

The staff at present is very much reduced, and some twenty-four lady gardeners are splendidly doing their best to keep things going while the men are proving their ability to carry out sterner work.

Our congratulations and thanks are due to the Editor, Mr. A. Osborn, for the admirable number now before us.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener and Forester to Lord Curzon, Castle Boro', Clonroche, Co. Wexford.

With April the lawn mowers are started to work, and, if the lawns have not been swept and rolled, the sooner the better for the lawns. The first mowing should be done with the blades of the machine raised slightly higher than is usual for the rest of the season.

This is the season to sow down new lawns, tennis courts, &c. The seed, a special mixture from a good seedsmen, should be sown thickly on a carefully prepared soil and rolled in. If germination is good, the grass should be allowed to grow unchecked till six inches high, when it should be lightly topped with a scythe; a fortnight later it should be mown with a scythe again, and the mowing machine run over it from then on every ten days. This method ensures a close turf the first season. Care, however, should be taken not to use it too hardily the first season, and after the first mowing constant rollings are necessary.

A topdressing of well rotted short manure on the top of the beds of Lily of the Valley early in the month before the new growth is barely through the ground will help the flowers both this year and better still next year. If this is not possible, a good soaking with liquid manure in the middle of the month and again after the flowers have all been gathered will be of immense benefit.

Violets should be propagated by cuttings put in closely in a cold frame. A single light will hold several thousand, both the single varieties of outdoor work and the doubles for growing in cold frames or pots under glass next winter. These cuttings will be rooted and ready for their summer quarters by the beginning of May. I find beds six feet wide, with alleys two feet wide, are very satisfactory, making all the necessary cleaning and watering during the summer months comfortable and to the benefit of the plants, as one does not walk in on the roots of the plants. If the above method of propagation is not convenient, a little later in the month, when the flowering season is nearly done, small pieces with roots attached can be taken off the old plants, and planted thickly in a border where it will be convenient to give them constant attention for a fortnight. In a month's time a good mass of roots will be formed, and then they can be planted in their summer quarters, the singles to remain for autumn and spring cutting in the beds, and the doubles to be lifted and flowered in frames at the end of September.

Hybrid Tea and Tea Roses should be pruned the first week of April, and by this method have a good chance of escaping the spring frosts, which sometimes cuts off their tender young growths. These should first have all small light growths removed, the strong growths of last year topped about two feet from the ground, and the shoots which flowered last year removed if they

can be spared. In any case, shorten these older shoots fairly hard back.

Old stools of early flowering *Chrysanthemums* should be broken up and planted till the end of the month in a cold frame. These will make better plants than cuttings. Stop the growth six inches high, and grow on naturally after, planting out in the garden the first week in May.

Plant out *Pentstemons*, *Gladioli* and *Violas* for a good display in summer. The cheaper *Gladioli* are grand for massing in colours—America, pink; Baron Hulot, blue; *Princeps*, scarlet; Halley, salmon, and Early are fine in masses through the herbaceous border or at the corners of beds of flowering shrubs.

Cuttings of *Dahlias*, *Lobelias* and *Iresine* may still be put in with good results. All tender bedding plants wintered under glass may be gradually hardened off in cold frames by the end of the month.

Bedding *Begonias* should be started into growth at once and planted either in boxes or pots as soon as the new shoots are about an inch long. These are better grown from then on in cold frames or on a very mild hotbed, with no shading. Water with extreme care until new growth is active.

Hardy Annuals may be sown out in the garden. A list of some of these and the method of sowing them appeared in the March number, page 15. To these may be added:—*Phacelia Campanularia*, a lovely shade of blue; *Mignonette*, *Perfection* and *Red King*, and the Mammoth form of *Machet*; *Larkspur*, stock-flowered rosy-scarlet; the annual *Chrysanthemums*; *Candytuft*, *Little Prince*; *Godetia*, double, pink; the *Eschscholtzias*; *Nigella*, *Miss Jekyll*. A corner for a patch of *Matthiola Bicornis*, although not a pretentious flower, makes a garden in the evening very fragrant—there is nothing quite so sweet.

Sweet Peas sown in pots may be planted out about the middle of the month, and if good well grown plants that have been stopped and are growing freely again they should have eighteen inches between each plant in the drill; six plants make a good clump, and they are very effective grown that way.

The rock garden will be needing attention, and any gaps through deaths during the winter should be planted at once from cuttings rooted last summer and wintered under glass. The tufted *Androsaces* and other plants that are covered with small hairs around their crowns during winter are the worst offenders. The best plan is to have them tilted in fissures between the rocks wherever possible. Choice plants that are susceptible to slugs and will be making new growths should be carefully watched and protected for a time with zinc collars. A few blank spots may be sown with *Portulacas* and other similar annuals suitable. The *Portulaca* must have a dry sunny spot; it prefers a little mortar rubble and crumbled cow dung in the soil, the surface pressed down with a board and a little sand sprinkled over; on this sow the seeds, and do not touch it again or attempt to cover the seeds or they will probably fail to germinate.

Plants of *Meconopsis Wallichii* and *Cambria* grown from seed sown last year in March will be ready to plant out at once; *Meconopsis Cambria* does well also with the same treatment. *Liliums* started into growth in pots can be planted in groups. At the back ground these taller plants

lend an attractive and natural appearance to a rock garden.

Climbers will need attention, especially the *Clematis*, which will be growing freely. The climbing and pillar *Roses* will need putting firmly in position for their summer flowering, both on walls and pergolas or on pillars.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

PRUNING.—The early part of this month is the best time to prune newly planted fruit trees. On young standard trees of apple and pear the growths should be shortened to about one-third of their original length, leaving a little more or a little less, according to the strength of the shoots. Thus, very strong growths can be left a foot or more long, whereas six inches will be plenty to leave on weaker shoots. The reason for this is that the harder a shoot is cut back the stronger will be the resultant growth, therefore a weak shoot is cut hard back to induce greater strength, while a strong growth is left longer, thereby encouraging shoots of medium strength, which are always more prolific in forming fruit spurs. Moreover, medium-sized, well ripened wood is less prone to canker than are gross shoots. Young standards with four to six shoots should be pruned just above two good side buds, so as to get two leaders next season. If there is a centre shoot it should be cut out. Older trees that have enough branches should be pruned just above a bud pointing in the direction in which the young shoot is desired. It is not wise in all cases to prune to an outward pointing bud—e.g., apples such as *Lane's Prince Albert* and *Norfolk Beauty*, which are inclined to grow in a horizontal or even drooping manner, should be pruned to a bud pointing upwards, otherwise the branches will, in a few years, touch the ground. Young fan-trained trees of plum and pear should have the growths shortened by about two-thirds, to a bud on the under side of the shoot, and the same applies to espalier-trained trees, except that in the latter the middle shoot is left about 15 inches long to extend the tree, whereas a fan-shaped tree should have no centre shoot. The side growths on cordon trees should be closely pruned to form fruiting spurs, and the leading growth left about 9 inches long. If it is left longer than this the lower eyes often fail to break, with the result that bare spaces, devoid of fruit spurs, occur up the length of the stem. It is always best to "make haste slowly" in covering the allotted space, both with cordons and with fan-trained trees, as undue haste to cover the wall means in the end lengths of bare wood instead of evenly distributed fruit spurs.

WATERING AND MULCHING.—If the weather is dry, water should be given to any late planted trees that may require it. A good mulch of strawy manure applied afterwards will generally make a second watering unnecessary. Established wall trees often require watering during April, especially in positions where the wall, or tall trees behind it, keep off the rain to any extent. Apricots and cherries are usually the

first to suffer from this cause. It is a good plan to mulch all wall fruit trees after the middle of April. By that time the border will have absorbed some warmth from the sun's rays while still retaining plenty of moisture, which the mulching will conserve. Moreover, where a mulch of good strawy litter has been applied, the wall trees can be attended to during the wettest weather, between the showers, without discomfort to the worker or detriment to the border. If manure for this purpose is not to be had, short grass clippings from the lawns make an excellent substitute.

Newly grafted trees should be examined, and where clay has been used replace any that has fallen off. It is advisable to bind damp moss round clay-covered grafts in times of drought or parching winds.

DISBUDDING. The first thinning of the growths on peach and nectarine trees should be carried out as soon as the shoots are pushing. Be careful to leave a strong growth at the base of the fruiting wood to replace the latter when it is cut away after fruiting. Also leave a good shoot at the end to encourage the flow of sap. The intervening shoots can be rubbed out, a few at a time, taking care not to denude the tree of too much growth all at once. The shoots on apricot trees should be thinned out, leaving those that are the best placed for forming fruit spurs.

GENERAL REMARKS. Continue to protect trees that are in flower on frosty nights, and take care that the material used is not forcing the growth unduly, or the trees will suffer when it is removed. Keep a sharp look out for the first signs of aphid on Morrell's cherries, and if any are seen spray the trees with quassia extract or some other good insecticide. On wet days stakes can be prepared for the strawberry nets, and any necessary repairs to the latter executed. These will be required next month, and should be quite ready when needed, as May is a busy month in the fruit garden. Any new nets that are required should be ordered at once. It is much easier to net fruit quarters now that nets can be obtained, of the square mesh type, to exactly fit the piece of ground to be covered. If a good framework of larch posts, 5 feet high, with wires strained from post to post, is provided, it is a simple matter to hang the net on or take it off, and the framework will last as long as the strawberries occupy the ground.

The Vegetable Garden.

By J. B. Pow, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

PEAS. If peas are intended to be picked early in July a sowing should be made about the middle of the month. It would be difficult to give precise dates for putting the seed in the ground, as so much depends on the soil and situation. It is a good practice to sow a second early and a mid-season variety for the first sowing in April. Should pea rust attack the crop, the plants or line affected should be burned as soon as possible to prevent the disease from spreading. There are no other direct means for destroying this fungus.

CARROTS. The main crop of carrots should be sown this month. Carrots require a soil of a good depth and, if possible, rather light. Ground that has been manured for a previous crop will be

found suitable. It should be free from wire worm and other injurious grubs. Before sowing the seeds give the ground a good dressing of soot or wood ashes, and rake the ground level. Draw the drills from one foot to fourteen inches apart, according to the sort grown. After sowing cover in the seed lightly, and rake over the ground to remove stones, and leave the soil even.

VEGETABLE MARROW. Sow a few seeds in pots and place in heat to germinate. Moor's Cream and Table Dainty are two good varieties.

BROAD BEANS. At the first opportunity the main crop of broad beans should be sown. Select ground that has been heavily manured. Draw the lines about four inches deep and three feet apart. The seed may be sown six inches apart in the lines.

FRENCH BEANS. French beans may be sown in boxes about the middle of the month for planting on a sheltered border early in May. Sow the seed about two inches apart and place in cool house to germinate. When the seedlings are well over the ground, harden off the plants, and plant out on a sheltered border at the first opportunity. A sowing of runner beans may be made about the end of the month. Open a trench about four inches deep, sow the beans about six inches apart, and fill in the trench with dry soil from the potting shed. When the plants come through the soil protect with evergreen boughs.

POTATOES. Potatoes in pots and frames will require attention. Give plenty of ventilation to prevent the plants from becoming drawn, but never expose them to cold draughts. Have plenty of protective material handy to cover up the early border potatoes, as they will soon be making their appearance through the soil.

TURNIPS. Make a sowing of Early Snowball or White Gem. Sow the lines one foot apart and draw the drills one inch deep. Sow for succession every three weeks. To ward off slugs, dust between the lines with soot once or twice a week.

CALIFLOWER. Plants wintered in cold frames or sown under glass in the early spring should now be planted in the open. To give the plants protection, draw drills about two feet apart and four inches deep. Plant the cauliflowers one and a half feet apart in the drills.

BEEF. Sow on a warm border early this month a sowing of Crimson Ball or any good round variety for summer use. The main crop may be sown by the end of this month. For early beef draw the lines fourteen inches apart. Later beef should be sown one and a half feet apart in the lines, and thin the plants out to nine inches asunder.

PARSLEY. Plant out parsley that has been sown in boxes early in the season. A sowing may now be made in the open. When the seedlings are well advanced thin out to a foot apart.

GENERAL REMARKS. During the past month the weather has made it almost impossible to get the month's work in the kitchen garden completed. At the first opportunity, get all seed sown as advised last month, clean asparagus beds and topdress them with rich old manure. New beds may be planted at any time during the month. Prepare celery trenches. Broccoli will now be forming their curd part; if not required when fit, remove the plants to a cool shed, where they will keep in good condition for a fortnight.

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1916

EDITOR—J. W. BESANT.

Greenhouse Primulas.

By T. W. BRISCOE.

DURING recent years considerable improvement has been made among all classes of Primula, especially those employed for producing a display in our greenhouses throughout the winter months. There is a wonderful variety in regard to colour, and the plants possess a vigorous constitution, providing a few simple cultural details are observed. The most popular at the present time is undoubtedly *P. stellata*, an elegant strain introduced by Messrs. Sutton in 1895. The plants are of graceful habit, are very free flowering, and remain in full beauty for a considerable period. They last well in a cut state, and are valuable for the dinner table and dwellinghouse decoration generally.

Moreover, they make charming plants to stand in bowls, &c.

One of the best I have grown is Coral Pink. The flowers, which are carried well above the foliage, are a pretty shade of pink, while the reddish tinge in the stalks of the leaves are an additional charm to many. White Queen is another gem, the pure white flowers showing off to advantage against the dark green foliage. Both the light blue and dark blue are good, and with Ruby, a fine richly-coloured Star Primula, a useful collection could be made. For those

who only require a few plants, a good mixed strain is offered by all the leading seed houses.

The various forms of *Primula sinensis* are well known, and here again the improvement is most marked. Any catalogue will give a wide selection, but I have found the following

to give excellent results:—Giant White, The Duchess, Crimson King, a very dark crimson; Reading, blue; Chelsea, rose; Chelsea, scarlet, and Lord Roberts. Where a good yellow Primula is required, the hybrid *P. Kewensis* should be chosen, and it should be sown in March or April to get fine plants. It pays for generous treatment, and when the pots are filled with roots they may be fed with liquid manure, or some reliable fertilizer.

P. obconica.—This Primula is well known both on account of its decorative qualities and for the fact that some sensitive skins

are given a kind of rash if they come in contact with the plant.

At a recent meeting of gardeners I was assured that Homecea was an effective antidote.

They are most valuable for winter work, and for general purposes a mixed strain is best, although they can be procured in separate colours, such as Fire King, blue, white, lilac, and crimson. A sowing may be made in March



PRIMULA OBCONICA GROWN AT CARRIGORAN.

or April for an early display, but from a sowing I made on June 1, 1915 I secured some excellent examples in five-inch pots, which began to flower about Christmas, and are still (March 18) a mass of bloom.

P. macdoides is a light and dainty plant, and it is excellent for the cool greenhouse, while it will succeed admirably in a cold frame, providing sufficient ventilation is given to ward off any dampness. I have had some pretty plants in two and a half inch pots, but if larger specimens are in demand, they may be given receptacles four and five inches in diameter. Another nice little species is *P. Forbesii*, its rich rosy mauve flowers, with a bright yellow eye, being attractive throughout the winter and spring months. It is best raised from seed annually.

P. Cockburniana. Although a hardy biennial, I find a batch very acceptable on account of the bright orange-scarlet flowers. It can be propagated readily from seed, which should be sown directly it is ripe.

All the *Primulas* quoted are raised from seed, and with *sinensis* and *stellata* sections, it may be sown either in May, June or July. Where an early batch is needed, a small sowing must be made in May, but for general purposes the month of June should be chosen.

Well drained pots or pans may be used, and any light potting soil will do, providing the surface is made fine and even. Only a slight covering is needed, and each pot or pan should be covered with a piece of glass until germination has taken place. Arrange the pots in a shady part of a greenhouse, protect from strong sunlight, and never permit the soil to become dry.

Germination is occasionally irregular, so it is not advisable to discard the seed pan, after the appearance of two or three seedlings only. When large enough, each young plant may be removed and placed in a 60-sized pot, and then arranged on a shelf in a cool greenhouse. For this potting the soil must be rather light, incorporating plenty of clean leaf-mould and a portion of sand.

They will soon fill these small pots with roots; then they may be removed to four and five-inch pots, in which the majority will flower.

Provide ample drainage material, and make the soil moderately firm. The rooting medium consists of two parts good fibrous loam, one part leaf-mould, and one part from an old spent mushroom bed with a moderate sprinkling of sand to render the whole mixture porous.

Cold frames with a northern aspect, or where a little shade is afforded by a neighbouring tree or building, will suit them during the hot summer months. Give the plants a thorough watering, and afterwards water must be afforded sparingly until the roots have taken possession

of the soil. Give them plenty of ventilation; in fact the lights can be removed on all favourable occasions, especially at night, when the dew is very beneficial. *Primulas* enjoy cool treatment at all times, and they may remain in the frames until the end of September, or even later if the season is tolerably dry and mild. A light position in the greenhouse is then given, and if the few cultural details quoted above have been adhered to a glorious display will be the result before the winter is over.

Insect pests are neither troublesome nor numerous, but greenfly is occasionally present, which can be easily destroyed by light fumigations directly any are seen. This is important, or the foliage soon becomes crimped, and no progress is made.

Summer Sprays Against American Gooseberry-Mildew.

By PROFESSOR B. T. P. BARKER, M.A., and
A. H. LEES, M.A., University of Bristol.

THE writers have summarised in the present note the work on the summer treatment of American gooseberry-mildew on which they have been engaged during the past two years. The results of this work, in the course of which liver-of-sulphur was used with varying effect, confirm generally the conclusion of Messrs. Eyre and Salmon which was given in the last number of this *Journal* (February, 1916) in an article on "A New Fungicide for Use against American Gooseberry-Mildew." In that article an account is given of experiments conducted during the past two years on means of controlling the American gooseberry-mildew. Messrs. Eyre and Salmon conclude that "Solutions of liver-of-sulphur of the strength generally recommended for use as a fungicide are quite inefficient against the American gooseberry-mildew; at a concentration at which the solution becomes fungicidal, such severe scorching injury is caused to the gooseberry bush as to preclude its use." This conclusion is of considerable importance, since, as is pointed out, liver-of-sulphur has hitherto been considered by many investigators as efficacious against mildews in general and American gooseberry-mildew in particular.

Trial has been made of a mixture which does not appear to have been previously used—a mixture of liver-of-sulphur and a soft-soap-and-paraffin emulsion, which has given most promising results. How far the liver-of-sulphur is the active fungicidal ingredient has not yet been determined. Probably each of the three constituents is required for full effect. In any case the preliminary results have been so satisfactory that it is desirable to test thoroughly the effect

of liver-of-sulphur used in this way before finally rejecting this substance for the treatment of the mildew, especially in view of the frequent use of this substance as a fungicide, and its convenience and cheapness for this purpose. The primary object of this note is to call attention to this mixture, as used in the 1915 experiments, in the hope that it may be tried by other workers during the coming season and its actual value tested under a variety of conditions.

The work was started at Long Ashton during the summer of 1914, in consequence of a slight outbreak of the disease in the plantations at the Research Station. It was decided to attempt to ascertain to what extent the disease could be controlled by summer spraying, the point of view taken being that if the summer stage of the disease could be adequately controlled the amount of the winter stage formed would be so limited that, with the further reduction of the latter by tipping, the outbreak the following season ought to be reduced eventually to insignificance. Details of the 1914 experiments having already been published,* only a short summary need be given here.

The procedure adopted in the first set of experiments on the affected bushes was to apply, firstly, a spray which would kill by direct contact so far as possible the *mycelium* and *conidia* present on the bush, and, secondly, a protective spray to keep the parts on which the fungus had thus been killed free from infection from external sources. A number of fluids of the first type, *i.e.*, "hitting" or "contact" sprays, were tested, including one composed of 4 lb. of liver-of-sulphur and 20 lb. of soft soap in 100 gal. of water. On each of the plots thus treated a series of protective or "cover" sprays, such as Bordeaux mixture, lime-sulphur, &c., were applied. The applications were made at the end of July, the outbreak being a very late one. None of the results was entirely satisfactory, the mildew reappearing fairly generally, although only slightly.

In the course of this experiment it became evident that the "hitting" sprays were all more or less ineffective, because they failed to wet the fungus uniformly owing to the presence of air between the *condiophores* and the *conidia*. The importance of this point has also been emphasised in the paper by Messrs. Eyre and Salmon, who, owing to this difficulty, used their test fluids made up with 1 per cent. of soft soap. The writers, however, found that twice that quantity of soft soap did not suffice to give complete wetting, when the fluids were tested on a practical scale. Under those conditions liver-of-sulphur in the 0.4 per cent. solution mentioned

above proved inefficient. Messrs. Eyre and Salmon found that it failed in soap solutions of half that strength, when the percentages of the sulphur compound used were about the amount stated. It is, therefore, probably correct to conclude that liver-of-sulphur used at the rate of 0.3 or 0.4 per cent. in aqueous solutions or in soft-soap solutions is, at the most, of only limited value against mildews. (It is possible that a 1 per cent. solution might wet the less floury mildews, such as pea mildew, but fail with American gooseberry-mildew.)

The failure of soft soap alone to give the spray fluids under trial the necessary degree of wetting power led eventually to the use of soft-soap-and-paraffin emulsion. From previous spraying trials against woolly aphis on apple trees it had been found that with the comparatively hard water at Long Ashton the most wetting combination was an emulsion of paraffin in soft-soap solution at the rate of 20 lb. of soap and 2 gal. of paraffin to 100 gal. of water. With soft water not more than 15 lb. of soft soap need be used. This emulsion, both when used alone and when various fungicidal substances were dissolved in it, proved capable of completely wetting the densest patches of mildew. Even when a fungicide was not added to it, it appeared to possess a marked toxic action on the mildew, the *conidia*, so far as could be judged in the original trials by a microscopical examination, being killed after contact with it. The results of subsequent experiments tended to show that the emulsion alone could not be relied on to kill the "summer stage" completely, and on that account it was eventually decided after trial to use it in conjunction with liver-of-sulphur for the main 1915 experiment.

This experiment was an attempt to stamp out, if possible, the "summer stage" of the mildew from a fairly well-isolated gooseberry plantation in the neighbourhood of Weston-super-Mare, with the object of ascertaining if the disease would reappear the following season after this treatment supplemented by winter tipping, and if so, if the time of the outbreak was delayed sufficiently for the fruit to escape infection.

The fungicide used was the soft-soap-and-paraffin emulsion referred to in a previous paragraph, with the addition of liver-of-sulphur at the rate of 3½ lb. per 100 gal. of the fluid, *i.e.*, a 2 per cent. emulsion containing approximately 0.35 per cent. of liver-of-sulphur.*

* The mixture is made as follows:—In 5 gal. of boiling water 20 lb. of soft soap and 3½ lb. of liver-of-sulphur are dissolved by constant stirring. Two gal. of paraffin (preferably "Solar Distillate" brand) are forcibly sprayed into the hot solution, using a garden syringe with a rose attached for this purpose. For use add 19 gal. of water to every gallon of concentrated emulsion.

* Ann. Report of the Univ. of Bristol Agric. and Hort. Research Station, 1911.

From the preliminary trials it appeared that, when applied with reasonable care, this fluid was capable of completely wetting and killing the mildew, and that at the same time it caused no scorching or defoliation and no disfigurement of the foliage or fruit.

The plantation treated consisted of bushes of Whinham's Industry and Keepsake, and was situated 100 yards or more from the next plantation of gooseberries, in which the disease also occurred. The outbreak appeared in May, and by the beginning of June the berries and young shoots of the Whinham's and the young shoots of the Keepsakes were freely attacked. The fruit of the former variety was largely covered with the summer stage and remained ungathered on the bushes throughout the course of the experiment. When the disease appeared to be at its height about the middle of June the spray was applied, care being taken to wet the whole of the bushes thoroughly. An examination of the diseased shoots and berries a few days later showed that the production of new *conidia* had ceased, and that the fungus originally present had apparently been killed completely.

It had originally been intended to spray the bushes again at intervals during the remainder of the summer; but, except for a very slight new outbreak on a few of the shoots of the outermost bushes of the Whinham's plot, no further growth of the mildew occurred. It was, therefore, considered unnecessary to give any further spraying.

There was no damage done by the spray fluid to the bushes except in the case of a few Keepsake plants, which received the last portion of the fluid. In this instance some scorching appeared, and was evidently caused by too great a concentration of emulsion owing to lack of agitation in the knapsack machines used. On the few shoots which eventually showed the living "summer stage," the "winter stage" appeared also in due course. Very few *perithecia* were formed, and in none of those examined were ripe spores observed.

The critical test of the experiment is, of course, the reappearance of the disease and the time of the outbreak this summer. As to this, nothing can yet be said, but the experiment last year certainly serves to show that the liver of sulphur-soft-soap-paraffin emulsion is capable of drastically reducing the amount of the "summer stage" in an affected plantation and, provided that the spraying is administered as may be necessary, also of correspondingly curtailing the production of the "winter stage." Further than this conclusion it would be at present unwise to go.

It is probable that the character of the weather last season and the heavy crop of berries carried by the bushes prevented the formation of the succulent young shoots on the bushes

which are mainly the object of attack, and that the spread of the disease from the few shoots which bore living *conidia* after the spraying was accordingly hindered. On this account no satisfactory conclusion can yet be drawn as to the number of sprayings required to keep the "summer stage" under control. Trials in a plantation of young, vigorously growing bushes are required for this purpose.

The cost of the mixture at pre-war price per 100 gal. works out as follows:

	s.	d.
Soft Soap, 20 lb. at 11s. per cwt.	2	6
Paraffin (Solar Distillate), 2 gal. at 7d.	1	2
Liver-of-Sulphur, 3½ lb. at 8d.	2	1
Total	6	0

It should be remembered, however, that owing to its good wetting power less solution is used per bush than would otherwise be the case. With soft water 15 lb. of soft soap per 100 gal. would be amply sufficient, thus reducing the price to 5s. 4d. per 100 gal.

As to the mixture itself, it is believed that where the treatment of the "summer stage" of mildew by a "hitting" fluid is concerned, the employment of a wetting fluid of the paraffin emulsion type is essential, and, so far as trials to date go, none approaches the 2 per cent. soft-soap-paraffin emulsion for effectiveness and cheapness combined. The choice of an active fungicide to supplement the toxic properties of this emulsion is still an open question, as indeed is the need for the inclusion of such a substance. Liver-of-sulphur was selected, to some degree arbitrarily, for the experiments which have been described, and appears to have acted very successfully; but further work may well show that there are better fungicides for the purpose. In this connection it will be interesting to test in its place ammonium sulphide, the substance which has proved so promising in the experiments of Messrs. Eyre and Salmon. It seems possible that the effective results with the latter fungicide may have been due not only to its action in the form of a "hitting" spray but in part to its decomposition into volatile substances, which acted in a gaseous condition upon the fungus. Where "vapour" treatment is concerned the wetting properties of the fluid applied are not so vital, and 1 per cent. or less of soft soap in the mixture might then be adequate for effective distribution.

It remains to be added that the liver-of-sulphur-soft-soap-paraffin mixture probably possesses very limited protective properties against reinfection, and that renewed infection from outside sources can doubtless occur freely, even although the fluid may completely clear the plantation under treatment from the original "summer-stage" attack.—*Journal of the Board of Agriculture*, March, 1916.

Beekkeeping.

By PETER BROCK, Fairview, Enniskillen.

MAY is generally a critical month for bees, especially for stocks that have used up all their sealed stores. If a spell of cold or wet weather should set in, a strong colony may soon die of starvation, owing to the rate at which stores are consumed for the feeding and nursing of brood, or it may, through losing a large percentage of brood, be so much weakened as to render it unable to store any surplus during the remainder of the season. No hard and fast rule can be laid down as to the quantity of feeding a stock will require to keep it in a prosperous condition during an adverse period, so much depends on the weather and size of the colony. The stronger the colony the more feeding it will require, say from one half pint to a pint of warm syrup every night during the worst of the weather. It is much safer to err on the side of giving a little too much; although sugar is at war price, it will be amply repaid later on.

Brood-spreading, to hasten the development of undersized or backward stocks, should be attended to by skilled beekeepers, but it is an operation that is very liable to be overdone by beginners. On no account should either an empty comb or frame of foundation be placed in the centre of the brood area before the hive is well crowded with bees to the bottom of the dummy. Even then, unless the weather is warm and honey coming in, sufficient feeding should be given to keep up, or rather increase, the temperature, so as not to extend the brood area beyond where the bees can nurse it safely, and to encourage the queen to lay in the new comb. It is, however, much safer for beginners

to let the bees choose their own rate of expansion than run the risk of chilling brood on the outside frames.

When the honey flow begins and all danger of robbing is past, gradually give more room at the entrance. If the Swiss metal entrance is in use, keep it at the $\frac{5}{16}$ -inch depth, but increase the width of entrance to 8 inches, and towards the end of this month or beginning of next the plate regulating the depth of entrance may be moved up to the full depth of $\frac{1}{2}$ -inch, as required for ventilation. This entrance gives ample

ventilation without ventilating the floor-board; it is also an excellent protection against robbing, and when adjusted to the $\frac{5}{16}$ inch depth for winter it completely excludes mice. Floor-board ventilators are liable to be forgotten and left open when they should be kept shut, thereby chilling large patches of brood, or, when not used at all they are dirt-traps and nurseries for moths.

The sources from which honey may be obtained this month (weather permitting) are chiefly — black-thorn, plums, damsons, cherries, holly, sycamore,



Photo '09]

[J. Harper Scisif.

OXALIS ENNEAPHYLLA (see p. 70).

apples and raspberries, and in very warm weather the whin or furze gives a fair amount. The sycamore, when the weather conditions are favourable, yields a dark-coloured honey, fairly dense in texture, but only second rate in flavour. In districts where holly is plentiful, very fine sections of delicate-flavoured honey may be obtained about the end of this month. The apple alone, or better still, the apple and raspberry, gives a dense-textured honey of first-rate flavour, and being attractive in appearance it always commands top price in well-filled sections. Beekeepers situated near large apple orchards and raspberry plantations will, in most seasons, be amply repaid for having

stocks in a fit condition to fill a crate of sections from fruit blossom. If the weather is warm enough, the first crate of sections may be completed from this source, and the second crate well started and finished from the hawthorn early in June.

Strong stocks will require attention as they become pressed for room, and unless allowed extra space they will make preparations to swarm. The increased hum of business inside, and many bees fanning at the entrance—regulating the air currents to the interior—and the mane of new white wax added to increase the depth of cells for storage along the top edges of the brood combs, are reliable signs of the honey flow having started. Under such conditions, and, providing that the hive is well crowded with bees, the tops of the frames should be scraped free from wax or propolis, and a super or crate of sections put on. As heat is a very important factor in inducing bees to start and continue work in a super or crate of sections, it should be neatly packed all round the sides and covered with several plies of heat-retaining material, such as soft felt or flannel, then two or three sheets of newspaper on top, and neatly tucked in all round.

Stocks on fixed combs that are being transferred to frames should be attended to, and, after the brood area has extended to the frames, the queen may be excluded from the fixed combs with a sheet of excluder zinc. The worker brood in the fixed combs will all have hatched out on the 22nd day after excluding the queen, then the hive containing the fixed combs may be removed, and a crate of sections put on, or if the fixed comb hive contains much honey it may be allowed to remain till filled and sealed.

Beekeepers who have had foul brood to contend with, should look sharply after bees that may be located in hollow trees or in roofs of houses in their neighbourhood. Several notable examples have come under my notice of how foul brood may be retained and spread through combs established in inaccessible places, by runaway swarms which ultimately die. Bees have an inherent instinct for foraging through old combs, especially those on which bees die from disease; they seem to have some special attraction for foraging, or scout bees looking for a new home. Treating foul brood within ordinary bee-flight of combs containing disease and open to robber or foraging bees is like "threshing the wind." Owners of property where such bees may be located do not, as a rule, welcome the bees, and in most cases they do not take kindly to interference from beekeepers, especially if the bees are not giving trouble and located about the roof of their house, where considerable expense might be incurred in removing them. In such cases the only alternative to removal is to seal them up with cement.

Tulip Notes.*

IN the October number of IRISH GARDENING some notes appeared on Tulips for the rock garden. Many of these are now making a nice show, though since they came into flower the weather has been anything but favourable for their proper development; still, when an occasional blink of sun shines forth, the gorgeous colours of some of the species are very telling against the grey rocks and amid the colour tints of white and yellow Saxifrages, the blue of Muscaries and Scillas, and the white, lavender and purple of early Primulas. As usual *T. Kaufmanniana* was early in flower, and is a most desirable species in every way; there are two forms of it which should be in every collection viz., *T. K. aurea* and *T. K. coccinea*, the latter particularly effective. *T. K. Gaiety* is distinct, the flowers being nearly white with a red band on the outside of the outer segments. *T. Eichleri*, one of the large-flowered set with gorgeous crimson flowers, was a centre of attraction early this month, and is now followed by *T. Fosteriana*, not less attractive in its dazzling scarlet vermillion. *T. Greigii* is now showing its handsome orange-red flowers, and the brilliant *T. Kolkowskiana* is making a glorious display with its vermillion blossoms. *T. stellata*, a rare little beauty from the Himalayas, is better than usual this year, every bulb having produced its pretty rosy-red and yellow flower. *T. triphylla* is very charming, bearing its rich golden-yellow blooms, and one hopes it may prove a good doer and go on increasing in beauty year by year. There are, of course, many not yet in flower, but which are showing bud, and will soon blossom forth in various bright colours. *T. dasystemon* is just opening its white flowers, which are yellow at the base of the segments, and the tall *T. ocellis solis*, with softly hairy leaves and bright red flowers, is almost full open. Next month I shall endeavour to draw attention to the later flowering species of Tulips in the hope that those who have not yet felt induced to adorn their rock gardens with these brilliant flowers may give them a trial.—J. W. B.

Oxalis enneaphylla and *Saxifraga aizoon* Rex.

By J. HARPER SCAIFE, LL.B., Clifton, Dalkey.

OPINIONS will differ as to which is the most beautiful of the rock garden plants, though there is little doubt but that *Oxalis enneaphylla* would easily get a place amongst the first half-dozen. It is a fascinating and extremely beautiful plant with crinkled glaucous grey leaves, in themselves a very attractive object. But the flower must be seen to be properly appreciated—somewhat like a *Convolvulus* in form, but pearly

* Written in April.

white, with a splash of purple at the base of the cup; it is not only unlike anything else in the rock garden, it is almost without a rival in its loveliness.

Yet it is hardly an alpine, as it comes from the Falkland Islands—a bleak inclement country with a rainfall greater than the average for this country, and a winter temperature from 20° to 50° and a summer one of 40° to 65°.

This tells us at once that *Oxalis enneaphylla* will not be at home in a sun-baked position. Yet it is most sensitive to the sun's influence; it shuts up at sundown, and is shy about opening on grey sunless days.

A cool position, shaded from the sun during the middle of the day in well-drained stony soil, should suit it.

It flourishes and increases well here on an open ledge where it gets the morning sun, but is partially shaded by rocks for the greater part of the day, in soil containing plenty of crushed granite and small stones. It can be propagated without much difficulty, just as it comes into growth in the spring.

Saxifraga Aizoon Rex is one of Mr. Reginald Farrar's discoveries, and he tells the story of how he found it in his book "In a Yorkshire Garden."

It is still a somewhat rare plant, and one off-set seems to take two or three years to reach the flowering stage. Distinguished in many ways from any other *Aizoon*, it is the best of that numerous and varied family. A flowering rosette is from one to one and a half inches across, and its dark green leaves are finely toothed and heavily encrusted. When about to throw up a flower spike the centre puts on a deep crimson colour, a peculiarity which marks it off from the rest of its family.

The flowers, borne upon a dark crimson stem, are relatively large in size, finely shaped with overlapping petals, and the colour is a good solid white, with a few tiny pink dots.

It is a vigorous doer, gives no trouble, and increases rapidly.

Lysichitum camtschaticense.

WHEN better known this showy hardy bog plant will be met with much more frequently than it is to-day, as it richly deserves to be, for an established colony must be a pleasing sight when in bloom, during the month of April, with its bold rich yellow arum-like flowers.

A small colony planted beside the pond at Fota, the residence of Lord and Lady Barrymore,

seems to be establishing itself in a satisfactory manner, and this year three strong plants flowered this season, and it is hoped that seedlings raised from the solitary bloom last year will further supplement it in time to come.

Reference was made to this plant in the Royal Horticultural Society's Journal, Vol. XLI., Part I., on page 25, and the writer on Trees and Shrubs of the Pacific Coast says:—

"I cannot leave the north-west without mentioning that locally much-despised Arum *Lysichitum Camtschaticense* which fills the marshes in the valleys in April with its immense yellow flower, and later with its leaves often 3 feet long by a foot across. Skunk Cabbage is the term of opprobrium given to it in the west. Its large succulent roots go deep into the bogs, and one would require trenching tools to get them out.

The fine clump growing against the north side of the large Temperate House at Kew shows how well it likes our climate."

Mr. Irving also told me that there the plant naturally reproduces itself from seed.

E. B., QUEENSTOWN.

Broccoli—Mackay's Early White.

DURING April we have been cutting very fine "heads" of this variety. The majority of the "heads" were of good size, but not coarse, and of a pure snow white. The quality is excellent, and probably the crop would have been earlier had mild weather set in sooner.—GARDENER.

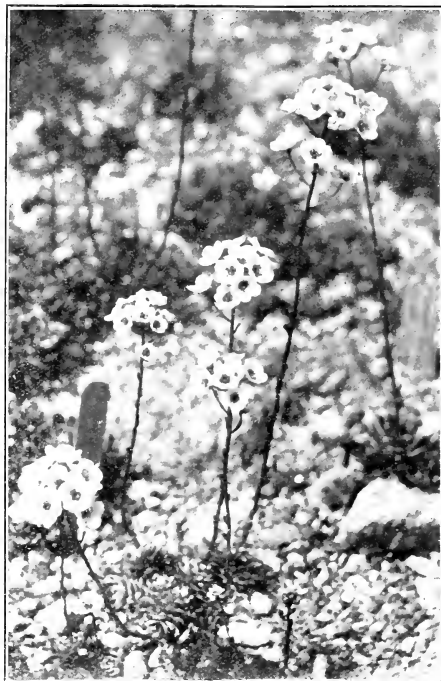


Photo by

[J. Harper Sealife.

SAXIFRAGA AIZOON REX.

The Alpine Garden.

ANEMONE PULSATILLA is certainly amongst the most attractive plants in flower in the alpine garden at present, from its grey green, fern-like foliage it sends up flower stems, each carrying a solitary violet-purple flower.

Anemone pulsatilla rubra, A. Halleri, and A. vernalis, a close relation to *pulsatilla*, with purple flowers enclosed in buds covered with golden brown, silky hairs, are all in flower, and amongst the other *Anemones* noted are A. blanda, deep blue; A. b. scythiica, larger and paler than the former; A. nemorosa

It is interesting to note that this plant, introduced into this country from the Himalayas in 1900, is always reported as a shy flowerer, but for the last few years it has proved itself quite the reverse in many gardens, if not universally.

Primulas, both in the frames and open ground, are flowering extremely well—*P. rosea*, both in pure peat and in peat and loam, has sent up very sturdy flower spikes, as has *P. frondosa* and *P. formosa*.

P. Maximowiczii and *P. Purdonii*, from seed sent by Mr. Farrer from China, are both in flower in the alpine house.

P. Maximowiczii is more interesting than



SAXIFRAGAS ON A SMALL ROCKERY.

Robinsoniana, perhaps the most beautiful of the blues, and A. intermedia, with yellow flowers.

These *Anemones* all come very freely from seed. The garden is very late this year, quite three weeks behind last, but growth has been very rapid for the past fortnight, and a change can be noticed every day.

Slugs have so far been conspicuous by their absence, but a few mild, damp evenings will bring them forth in their hundreds. Pieces of turnip left on the ground near the most precious young plants are often the means of distracting the attention of the slug from the tender green shoots of his most usual victims.

The *Kabschia Saxifragas*, which have been wonderfully good this year, have mostly finished flowering; the charming *S. lilacina* is still, however, covered with its pale rosy-purple flowers, produced from tiny silvery rosettes,

beautiful, its flower spikes vary in colour from a sickly brick red to a rich maroon.

Other *Primulas* in flower in the alpine house include *P. marginata*, *P. marginata pallida*, *P. marginata* "Lynda Pope," *P. ciliata* "The General," *P. septemloba*, *P. glaucescens*, *P. Chusii*, *P. hirsuta* and *P. alba*.

Amongst the "happy" planting effects noted were *Tulipa Kaufmanniana*, planted through the earliest-flowering *Veronica*, *V. filiformis*, a very dainty little carpeter, with blue flowers; and another pleasing effect was got from a planting of *Primula* "Sparkler," through which *Scilla bifolia* was flowering.

In another fortnight the garden promises to be a blaze of colour, and every-day planting, so long delayed by the cold weather, is being done.

M. E.

Greenhouse Calceolarias.

This genus of Slipperworts belongs to the order Scrophulariaceae, and is divided into two sections, the herbaceous or large-flowered florists' varieties and the shrubby kinds.

In recent years Herbaceous Calceolarias have been brought to such a high state of perfection by hybridising the finest strains that each year they improve in size and vigour; a good batch of well-grown plants staged for effect is a sight not soon forgotten.

They are easily grown in a cool house, but it must be understood from the first that no plants resent extreme conditions of temperature more than they do or are so susceptible to a dry parched atmosphere.

Seed is best sown as soon as ripe about the end of May or in June if large plants are required, to be followed by a sowing in July; sow in pans, the soil to consist of good fibry loam, leaf soil and sand rubbed through a small meshed sieve. Having got ready the seed pans put some rough loam or leaves over the crows, press the soil fairly firm, making the surface smooth and slightly convex, afterwards well water, and leave to drain, ready for sowing. The seed, being so very small, will require very careful handling, as it is likely to be blown about; sow evenly and very thinly, and cover the seed as lightly as possible with fine soil or sand, place in a close unheated frame, and keep well shaded. If it is found necessary to raise the seed in a greenhouse or vinery, the pans should be covered with a sheet of glass, over which spread a piece of paper, and if in a dry position a covering over the glass of damp moss instead of paper will check rapid evaporation.

The seeds quickly germinate in a close, moist atmosphere; it generally takes about seven to ten days before the young seedlings appear through the soil; and as soon as they do so the glass should be removed and attention given to prevent them getting dry; keep them shaded, and if water is required it is best done by soaking the pans in tepid water. As soon as they have made their second leaf they should be pricked off into pans or boxes three inches apart. Great care should be taken in lifting them from the seed pans, but if they have not been sown too thickly, and with the aid of a label, they can be transferred without injury. Contrary to most seedlings, when as a rule only the strongest are saved and the weakest thrown away, it will be found with Calceolarias that the strongest and most robust growing seedlings will produce a large percentage of yellows, so that it is essential if you wish to retain the most delicate and brightest hues you must save the weakly growers which, when once started into full growth, will gain in constitution.

Grow in a similar position as before, and on all occasions shade from direct sunshine and sprinkle overhead with rain-water occasionally; if the soil, turns at all green or hard, stir the surface between the plants very lightly with a pointed label. When the plants have made about four or five leaves they should be potted off into sixty size pots, using a similar but slightly coarser compost than for sowing; well crock the pots, and transfer the small plants with great care, with as much soil to the roots as possible. After potting, water carefully and place in a cool

frame, one situated under a north wall with a good bottom of ashes is now an ideal place for growing them on. Always give plenty of ventilation on suitable days, taking care that they do not suffer from cold draughts, as any check is sure to bring on attacks of greenfly. Calceolarias are particularly liable to the ravages of aphid, and should be fumigated as soon as noticed with an approved fumigant; if left to get very badly infested, and then fumigated, the deposit caused by the dead aphid will cause damping of the foliage, so that fumigating at regular intervals will be found best. An occasional syringing with Quassia Extract, getting the spraying well under the leaves, will be found very distasteful to insect pests, and a good preventive.

By August the plants should be ready for potting into 6-inch pots; growth is very rapid now, and they should be pinched evenly all over to produce nice bushy plants, and if large plants are desired another shift will soon be necessary into 8-inch or 10-inch pots.

For the final potting the compost should consist of two parts good fibry loam roughly pulled to pieces with the fingers, one part mellow leaf soil rubbed through a $\frac{1}{2}$ -inch sieve and one part old mushroom manure, with the addition of a 6-inch pot of soot and a little coarse sand to the barrowful. Pot firmly, but not hard, into clean pots, and continue to grow in frames, under a north wall, where very little shading will be required, and on mild nights the lights can be entirely removed from over them, leaving the plants open to the night dews, which will induce short stocky growth. This treatment will also do away with the necessity of syringing the plants.

Towards October, when the cold nights set in, it will be best to remove them to a cool greenhouse, ready for wintering, with a temperature of about 15 to 50°. Place the plants on a shelf or stage where they can get plenty of light and air, and still keep them shaded from the strong sun. During the winter they require very careful watering, and when growth commences early in March, weak liquid manure, twice a week, is a fine stimulant. If a batch of plants are now potted on and again pinched before the flower spikes show, they will make large specimen, and also be useful for succession to prolong the flowering period.

Stake all plants neatly that show bloom, leaving the stakes sufficiently long for the full growth of the flower stem, and discontinue feeding when the blooms show colour, but when in bloom give only soft water.

Calceolaria profusa and the hybrids Veitchii and Bronze Age are of true perennial habit, and bear their flowers in tall, graceful sprays, 2 feet to 3 feet high, are easily raised and grown from seed or cuttings; they bear the same relation to the large-flowered varieties as the Star Cineraria does to Florists Cineraria, and old plants potted on make magnificent specimens for greenhouse decoration.

The more recent hybrids between profusa and the large-flowered Calceolaria are a decided acquisition in these lovely and showy plants.

C. Kellyana and C. violacea are also varieties of easy culture, and cuttings struck in autumn will bloom well the following summer in a cool greenhouse.

W. H. LEE.

The Arboretum.

Up to the middle of April, when these notes are being written, there has been no great improvement in the weather. True, there has been rather more sunshine than in March, but a bitterly cold wind, amounting at times to almost a gale, and accompanied by showers of sleet, has not been favourable to vegetation. The only redeeming feature is that these conditions have been fairly constant since early in March, and consequently most trees and shrubs which had not started during February have moved but slowly, and are not therefore suffering so much. *Acer opalus*, the Italian Maple, more commonly known as *A. opulifolium*, usually the earliest of the larger trees to show flower and leaf, is as yet scarcely showing signs of life, and other things are correspondingly late. Despite the cold, however, flowering trees, such as cherries, are fast swelling their buds, and Waterer's Cherry should be in fine form about Easter. *Prunus tomentosa*, a most satisfactory shrubby species, is now almost full out, but suffers from the harsh wind and sleet. It is a beautiful object when in flower, and not being a tall grower is worth a sheltered corner where there is reasonable hope of enjoying its beauty.

Some of the early-flowering Brooms are coming on fast, and *Cytisus Beani* is already making a show. It will be followed very soon by *C. kewensis*, a plant of surpassing beauty when covered with its sulphur-coloured flowers. *C. Dallimorei* also gives promise of a fine display ere long, being covered with buds, which, if all goes well, will open out into rosy-pink and crimson flowers. These three Brooms all originated in the Royal Gardens at Kew, and have been eagerly welcomed in gardens far and near.

How beautiful just now are the many forms of *Cydonia japonica*, surely one of the loveliest early-flowering shrubs. The privilege of visiting the wonderful collection of trees and shrubs at Kilmacurragh, Co. Wicklow, the other day revealed several forms of *Cydonia* in rare bloom. The branches were simply laden with blossoms, and apparently the plants enjoy being left alone, as the finest specimen growing at the end of a wall is never pruned at all. Not far away a grand old specimen of *Fuchsia excorticata* was full of buds, a few flowers being open, their curious combination of green and red contrasting with the brownish-yellow bark, while the branches are still leafless.

Magnolia Campbellii was also bearing many of its large-rose-coloured flowers, and though some had been injured by frost, sufficient remained to make a good show. Originally planted against a wall, it now far exceeds it, and apparently suffers no injury at Kilmacurragh, though in colder districts *M. Campbellii* is not hardy. The collection of *Rhododendrons* is very rich, but not many were in flower, though soon there will be a glorious display. *R. Falconeri*, an immense bush, was carrying a large number of buds just about to open, but the finest display was made by *R. barbatum*, Rashleigh's variety, which at the end of practically every shoot was carrying a fine truss of dark crimson flowers. This fine variety differs from the ordinary *barbatum*, as Sir F. W. Moore pointed out long ago, in having yellowish hairs on the leaf stalk instead of black as in the type. The arboretum at Kilmacurragh is immensely rich in fine specimens of trees and shrubs, particularly Conifers. The specimens of

Arthrotaxis, *Fitzroya patagonica*, *Saxegothea*, and such like rare and somewhat tender plants, are rarely met with in such grand condition unless in Cornwall. Many of the hardier Conifers are represented by very fine specimens, notably *Abies Pinow*, *A. grandis*, *Picea orientalis*, and many others. One could go on writing for long enough of the wonderful specimens of *Laurelia aromatica*, *Podocarpus nubigenus*, *Tricuspida lanceolata*, *Embothrium coccineum*, and other unique specimens, but to do them justice would require a longer article than this, so something must be left to a future date.

A great deal of nursery work is looming ahead now, as hitherto it has been impossible to put out young stuff. Seedlings of trees and shrubs sown in pots and boxes last summer, and wintered in frames, must now be lined out in the nursery. The ground has been prepared, as described previously, by digging in plenty of decayed vegetable matter, leaves, grass, &c., particularly necessary in this light soil. *Rhododendrons*, seed of which has been coming from China every year for some years back, are best pricked out in beds specially prepared of peat and sandy loam. In some districts where the soil is naturally of a peaty nature and free from lime, very little difficulty is experienced in growing on seedling *Rhododendrons* provided a half-shady position is available. It is otherwise, however, where lime is present or the natural soil is stiff. Then it is necessary to prepare beds, and preferably they should be somewhat raised, the edges kept up with stones or boards, and the compost filled in. Needless to say the loam used in the mixture should be known to contain little or no lime. Shade is very essential in the early stages, and unless this can be provided naturally artificial shading is necessary. Sometimes it is more convenient to grow on in boxes for a season, transferring to beds when the young plants are a few inches high: this plan works very well, and is far superior to growing on in pots. *Rhododendrons* are surface rooters, and in pots they have very little surface to work on, therefore they spread their roots down the side of the pot where they can get air, and when removed from the pots it is very difficult to place the roots horizontally near the surface. Young plants from boxes or shallow beds make a flat mat of roots and thrive much better. Nearly all the *Rhododendrons* from China of late years have been described by their collectors as growing on limestone, often in actual contact with the rock. It remains to be seen, however, whether they will grow in limy soil in this country. So far they are not all happy, though a number look promising where planted in peat beds. It will be some years, however, before it will be possible to say whether they resent lime or not.

During the last few days all shrub cuttings remaining under cap glasses have been examined and the rooted ones removed either for potting up or transplanting as the case may be. All not yet rooted are taken up and inserted again in one bed, where they will root as the weather improves. The beds thus cleared will now be forked over and thoroughly aerated, the surface dressed with sand, old potting soil, and fine leaf-mould if available. They will then be ready for the season's work. From May onwards large numbers of cuttings can be struck in these beds, and no garden, however large or small, need ever be without sufficient stock to maintain or extend shrubberies and plantations. B., Dublin.

Notes for Novices.

DWARF FRENCH BEANS.—Two sowings of this vegetable may be made during this month. Choose a sunny spot, sheltered from north winds. The ground must be in good condition. Dust the surface with soot, and fork over as finely as possible. Draw out drills 2 inches deep, and place the seeds along the drill at 1 inches apart. If the seeds germinate well, every other plant may be drawn out as soon as the first rough leaf is made, in order to avoid overcrowding of the plants.

RUNNER BEANS.—Seeds that were sown in 3-inch pots last month and placed under glass to germinate, should be sufficiently rooted and well hardened off, to be planted out in the open towards the end of this month. The soil for this crop cannot be too deeply dug or too richly manured. A good plan is to take out a trench 18 inches wide and 12 inches deep, and place 3 inches of rich, well-made farmyard manure along the bottom of the trench. Cover the manure with 4 inches of soil, breaking it up fine. Plant out in double lines at one foot apart each way, and place a good ring of fine cinder ashes round each plant, to protect the young plants from the ravages of slugs. To support the plants moderately strong stakes should be procured and fixed in position before the runners begin to twine. These runner beans will come much earlier into bearing than those sown in the open.

CABBAGE, CAULIFLOWER AND SPROUTS.—Early plants of these that have been growing on in frames can now be planted out safely, provided, of course, they have been well hardened. With a trowel lift each plant with a ball of soil attached, and plant the cabbage and cauliflower in rows at 2 feet apart each way and the sprouts at 2½ feet. Water the plants if necessary, and frequently hoe between the rows to encourage active growth.

BEETROOT.—Sow the main crop early this month. Select an open position, and one that has been deeply worked and having a fine tilth, so that the roots can push straight down for preference. For this crop wood ashes are most beneficial, and should always be worked into the soil when available. Draw out drills a good inch in depth and at 18 inches apart. Sow the seeds thinly and cover with fine soil. When the seedlings have grown 2 inches high, thin out the plants to 6 inches apart. This operation is best done when the soil is moist.

CELERY.—It is now time to prepare trenches for the earliest batch of plants. Trenches 18 inches in width and 12 inches in depth should be taken out. Turn over and break up the soil in the bottom. Over this place 4 inches of rich farmyard manure, and tread moderately firm. Immediately above the manure place 1 inches of the excavated soil for the reception of the young plants. Choose a moist day for the planting out operation. It is very important when lifting the young plants to retain with the roots as much soil as possible. Plant one row in each trench at 9 inches apart in the row. Never allow celery plants to become dry at the roots, otherwise they will run to seed prematurely. It is beneficial to the crop if the foliage is damped over during fine weather, late in the afternoon. To ward off attacks of the celery fly, dust the foliage frequently with fresh soot.

VEGETABLE MARROWS.—During the third week of the month plant out in mounds of soil on an old hot bed or in specially prepared trenches. At first shelter the plants from cold winds by means of a hand-light, or a few evergreen boughs stuck in around and hanging over each plant will answer the purpose equally as well. In bright weather spray the foliage morning and afternoon with tepid water, but do not apply too much water to the roots until signs of active growth is well advanced. Pinch out the points of the leading shoots from time to time to encourage lateral growths. To ensure a good set, pollinate the female flowers when fully expanded by means of a rabbit's tail. Mid-day is the best time to do this operation, when the atmosphere is dry.

TOMATOES.—A sheltered position facing south and fully exposed to the heat of the sun is the ideal spot in which to plant outdoor fruiting tomatoes. The soil should be of a light rich texture, and well pulverised at the time of planting. Plant out at 15 inches apart and insert a 6 foot bamboo cane behind each plant in readiness for support as growth advances. Water must be applied frequently. When 4 or 5 trusses of fruit have been formed pinch out the point of the leading growth. All laterals emerging from the main stem should be broken clean off before they have grown 1 inch long, so that the feeding properties may be directed towards the fruiting trusses. As the fruits are developing, mulch the surface soil with well-decayed farmyard manure, and thoroughly water it in.

FRUIT NOTES.—Continue to spray plum and cherry trees with Quassia Extract once a week, so that the aphid pest may be kept in check. The slug-worm is another common pest, and one that is most difficult to dislodge by means of an insecticide. It is generally to be found well fixed between two leaves. Hand-picking or squeezing the grub between the finger and thumb is the most satisfactory method to get rid of them. Young shoots that have made 8 inches of growth should have their points pinched out in order to swell up the fruit. Suckers emerging from the roots must be entirely removed. Peach and nectarine trees may yet require a little more disbudding. Sometimes an extra strong shoot here and there takes the lead. These shoots should be cut clean out, so that vigour may be more equally imparted to the whole of the tree. When bushes of the gooseberry are overtaxed with fruit, thin out the larger fruits for kitchen use, leaving those to remain 2 or 3 inches apart. In dry weather water and feed with farmyard liquid manure. All fruit trees in general that are growing in warm and dry situations should be given due attention to watering and mulching to conserve moisture at the roots and to preserve the ground from cracking.

FLOWER GARDEN.—Towards the end of the month and during favourable weather the bedding out of flower beds and borders will be one of the chief operations in hand. The beds should be prepared in nice working order before commencing to plant—neither too wet nor too dry. Previous to planting, see that the plants in pots, boxes and frames are sufficiently moist at the roots. When the bedding out is completed, everything should be left trim and tidy, so that the immediate surroundings will present a neat and finished appearance. Mostly all kinds of

climbers are now in full growth, so these will need special attention to tying in of the young wood, to prevent any damage being done by rough winds. In tying allow ample room for the growth to expand, otherwise the stems may be cut through and so disfigure the plants.

With the advance of the season Rose plants will be growing freely. Take every precaution to ward off attacks of greenfly, which are so liable to infest the points of young growing shoots. Quassia Extract, applied in the evening according to instructions given on the tin, is a safe and effective remedy. The Rose leaf caterpillar must be severely dealt with, otherwise its presence may very soon spoil many choice varieties. Hand-picking is the best plan to keep this troublesome pest at bay. Keep the soil well hoed between the plants and give copious supplies of water in dry weather.

M. D.

Olearia oleifolia.

This species was introduced to the Botanic Gardens, Glasnevin, some seven or eight years ago. It has proved quite hardy, and from a small specimen has grown into a nice bush. Flowers are freely produced, and good seeds usually follow. The flowers are rather similar to those of *O. Haastii*, but the leaves are much larger and the habit of the plant more open and less stiff than the latter species. B.



OLEARIA OLEIFOLIA IN THE BOTANIC GARDENS, GLASNEVIN.

The Ground or Potato Onion.*

This variety is well known in parts of Ireland, and until recently was largely grown.

This plant has been described as being a native of Egypt, or at least, as having been brought from that country by the British Army in the early part of the eighteenth century.

It must be admitted that a plant which bears an additional number of bulbs is more likely to be a native of a dry and warm climate than a plant which is viviparous. The time of the introduction, however, is not certain, since it was known and cultivated in the south and west of England some years prior to the Egyptian Expedition. If it be a native of Egypt, or of any other warm country, it is, indeed, a hardy one, since it bears the alteration of the seasons and

resists the attacks of insects much better, it is said, than the common onion.

PLANTING. The bulbs are planted in the middle of winter, and up till late in March—an old saying, "plant the sh-rest day and dig the longest," is fairly correct—about 12 inches apart and 4 inches deep, in lazy beds or ridges, and as the tops appear they are earthed up like potatoes. By the middle of the summer the earth is taken from around the bulbs to allow the sun to dry them off for removing and storing. The size and number of new bulbs depend very much on the size of those that have been planted; but they always yield a proportionately large increase.

SOIL.—A rich mel-low ground, on a dry sub-soil, is the most favourable to the growth and keeping qualities of the bulb; rank manure should not be used, in fact if the soil is new, no manure is necessary.

Another method employed in the propagation is when the onions have shot out their leaves to their full size, and when they begin to get a little brown at the top, all the soil is cleared away from the bulb down to the ring from whence proceeds the fibre of the roots, and there is formed a basin round each bulb which catches the rain. The old bulbs then immediately begin to form new ones; and if they are kept properly moist, and the ground good, the clusters will be very large and numerous, besides, bulbs grown thus above ground are much harder than those grown below ground, and will keep much better.—*Rhind's Vegetable Kingdom.*

Onion Sets or Bulblets.*

A METHOD of improving the size of onions by transplanting them was recommended by Worlidge so early as the beginning of the seventeenth century in his "Systema Horticulturæ," and this practice has lately been revived with great success by some eminent horticulturists.

The theory on which it is founded is extremely ingenious. Every plant which lives longer than one year generates the sap or vegetable blood, which will elaborate the leaves and roots of the succeeding spring.

* Kindly sent by a correspondent.

* Kindly sent by a correspondent.

In bulbous roots this reserved sap is deposited in the bulb, which in a great measure composes it. Now, the store which is thus formed varies considerably in the same species of plant, according to the particular circumstances under which it is raised. Thus the onion in the south of Europe accumulates a much greater quantity in a single season under a greater degree and longer duration of heat than is afforded by our colder climates, and, therefore, it acquires in a given time a much larger size.

McKnight was induced by those observations to suppose that two short and variable summers in England might perhaps be equal in effect to one long and bright season in Portugal, and, accordingly, he attempted a method of culture which has proved his inference to be correct.

In pursuance of this plan, seeds of the Portugal onion were sown in late spring very thickly on a poor soil and in a shady situation. Under these circumstances the bulb in the autumn had attained scarcely beyond the size of a large pea. The bulbs were then taken from the ground and preserved dry during the winter, and in the ensuing spring they were again planted at equal distances.

From this treatment the bulbets produced bulbs very superior to those raised immediately from seed, some exceeding 5 inches in diameter, and being more matured, remained sound throughout the winter, with greater certainty than those raised from seed in a single season. American and Dutch growers pursue with some slight alteration the same methods, and find it perfectly successful, many tons finding their way to England during the spring months—are eagerly sought after by small holders—the bulbs, like the potato onion, not been troubled by insects.—*Rhind's Vegetable Kingdom*.

Notes.

Primula Winteri.

THE earliest species to flower, *P. Winteri*, has been blooming in the open for over two months, and looks like keeping on for some time. It does quite well on the rockery facing north and protected by a friendly overhanging rock. In building rockwork much stress is laid on sloping all the stones into the soil but one, which hangs forward, is frequently very useful in protecting tender or early-flowering subjects.

Seedlings from seed collected in June, 1911, are now flowering, and it is interesting to note that though the parent was "thrum-eyed" and pollinated with its own pollen, the progeny show both "thrum-eyed" and "pin-eyed" forms so possibly more and better seeds will now be produced.

Wulfenia Cordata.

THIS is a pretty little early flowering plant, not more than 4 to 5 inches high, bearing short racemes of white flowers. The leaves are metallic-green, with stalks about 1½ inches long, the blades heart-shaped with toothed margins.

Saxifraga lilacina.

THIS is one of the most satisfactory of the *Kabschia* section, preferring a shady position. In fact it burns up and languishes in bright sun. The rosy-lilac flowers are freely produced from small rosettes of short thick fleshy leaves, and the plant makes a compact cushion. It rejoices in gritty soil, and is an excellent subject for a pan, and should be grown by all who possess an alpine house or cold frame. For competition in classes for alpine at spring shows nothing choicer could be desired.

Primula ciliata superba.

EVERY year this fine variety proves its value both in the rockery and in the alpine house. It was grown here before *P. Mrs. J. H. Wilson* was on the market, and is quite as good as that fine *Primula*, and has, if anything, larger flowers. It increases freely by offsets, and covers itself with umbels of soft lilac-purple flowers. It makes an excellent subject for the alpine house, an 8-inch pan of it being a glorious sight when in flower.

Primula Maximowiczii.

A NEW Chinese species forming rosettes of broadly lance-shaped leaves from among which it throws up a stem about a foot high bearing whorls of long-tubed flowers, of a reddish-chocolate colour, with much recurved petals. Not very long in cultivation, it is early to say much of its hardiness, but frame-grown plants have done very well. It may prove useful for hybridising, the colour being unusual.

Primula tibetica.

A Dainty little plant reminiscent of *P. muscarioides*, but smaller in stature and with fewer flowers to each "head." The individual flowers, however, are rather larger than those of *P. muscarioides*, and are of a soft blue, tinged with red at the base of the tube. The flower stem arises from a tuft of hairy spatulate leaves, and is about 6 inches high, bearing 10 to 12 flowers.

Catalogues.

C. S. DANIELS & SON, Wymondham, Norfolk, send us a list of Choice Plants for the Garden. Messrs. Daniels specialise in the production of plants for summer planting in the flower garden, and those who have difficulty in raising their own stocks will find their requirements fully met in the new list. All the showiest and best annuals, including several novelties, are offered as young plants ready for planting, and the prices are such as will suit practically everyone. With this list before one, a selection might be made which, for a few shillings, would make the smallest garden gay during summer and autumn.

The Month's Work.

The Flower Garden.

By CHARLES COTTEN, Gardener and Forester to
Lord Curzon, Castle Bore, Clonsilla, Co.
Wexford.

MANY spring plants will be passing out of flower, and care should be taken to ensure that they are carefully transferred to the beds where they have flowered to their summer quarters; a portion of the kitchen garden is usually set apart for this purpose. The Primroses and Polyanthus are important; the double Primroses are usually put in a place where they can remain undisturbed for several years, and do best that way. When dividing these, do not make the sets too small, as they are not strong growers. The Polyanthus can be divided more drastically. One good crown if well grown during the summer makes the best plant; the single Primroses also respond to this treatment. It should be borne in mind that the spring-flowering Primroses and Polyanthus make thick white fleshy roots during May and June, and that these roots are the life of the plants. Care should be taken to divide up the plants before these roots get too forward and are not more than 2 inches long. These roots are growing till the end of August, after which auxiliary brown fibry roots grown from the sides of them support them during the winter. The plants do not seem to mind the loss of a few of these brown thin roots, but those referred to first, which are white during the growing period, seem to be vital to the life of the plant, and if damaged the plant rarely makes progress that season.

Aubrietias when passing out of flower at the end of May should be cut back close to the heart of the plant about a week before it is necessary to lift them. I refer, of course, to those used on the formal flower garden, and which will have to be emptied for the summer bedding plants by the end of this month; these Aubrietias can then be carefully lifted and planted with some sharp sand around them for about a fortnight, after which they should be growing again, and can be divided up, every piece with a few roots attached making a good plant by next October. If necessary to increase the stock, cuttings when one inch long should be inserted under a hand-light in a shady corner. They should be put in very thickly in sandy soil, and when the points show signs of growing say the middle of July these tips should be pinched out and the plants put out 3 inches apart in a corner of the garden, where they will grow into nice little bushy plants by the autumn.

Phlox amona grows well under the same treatment, and makes a nice carpet of bright rose; this, however, requires a freely drained soil in winter.

Among the best of the Aubrietias are Dr. Mules, dark violet; Morbo-mii, bright rose; H. Marshall, mauve; Bridesmaid, light pink. These are all the larger-flowered type, and are as easy to grow as the older ones—Hendersoni, Leichlini, Fire King, &c.

All the bulbs, Tulips and Narcissus especially, should be lifted with as much soil as possible attached to the roots, and covered up with soil as quickly as possible. This will enable them to mature their foliage properly, which means perfecting the embryo flower of next year at the base of the bulb. Hyacinths do not respond to this treatment; and those who wish the best results from bedding Hyacinths must of necessity purchase a large proportion of new bulbs each year. May-flowering Tulips, one of our most charming and most useful flowers, especially the Darwin type, should always be planted in a portion of the garden where they need not be touched until July; then, if lifted and ripened in the sun and planted every year, they give, to my mind, a wonderful return.

Sow Wallflowers of sorts, Canterbury Bells of sorts, Sweet Williams, especially Pink and Scarlet Beauty, Coreopsis grandiflora, and any other biennials needed for the flower garden next spring. All the flower borders and beds must be kept scrupulously clean, and the best way is to keep the top soil loosened continuously with the hoe. Herbaceous plants should be staked as they reach a height which need it. Plants of Verbascum Ivanhoe, Caledonia, and Wildenoyii should on no account be neglected. At the passing of the spring flowers and before the summer flowers are at their best these lovely Verbascons are a blessing to those who like to have their gardens gay at all times. Carnations will be needing stakes at the end of the month. Roses, if showing signs of mildew, should be sprayed with blue-water; a weak solution of sulphate of copper. Mignonette should be thinned so that the plants are 12 inches apart; if the spikes are then disbudded they will be enormous. All annuals sown in April should be severely thinned as soon as they are large enough to be safe from slugs. Sweet Peas should be disbudded to single stems, taking out all side shoots until the plants are 3 feet above the ground; this will strengthen the plants and lengthen the stalk, as well as increase the size of the flower. A watering with weak liquid manure when the weather is dry will greatly benefit them. As the Lily of the Valley goes out of flower, or the flowers have been pulled, give a heavy soaking with liquid manure, and increase the size of your flower spikes for next year.

East Lothian Stocks planted the first week in May will require watering if the weather be dry until the plants be established and are growing again. These plants will not endure a check in their early days, but when well grown, and the powers that govern their destiny send you a big proportion of double flowers, they are well worth all the trouble. The Antirrhinum raised from seed can be planted out before the general summer bedding commences; thus in my case this is the 1st June, and I cannot advise others to do what I find is not safe myself, although many writers tell us to commence summer bedding by the middle of May.

The most tender of the summer bedding plants should be stood out of doors by the middle of May, but in a position so that they can be quickly covered should a late frost come along. As it usually does, this includes the bedding Begonias, and where these have been grown in the full sun with plenty of air since they commenced to grow, they will be quite safe; but

those people who have grown them in shade to get a more luxuriant leafage will now have the pleasure of seeing them scorch up with the first blast of sun. Everything should be done to have all ready, so that when the time comes the plants will be got as quickly as possible into their summer quarters. Our summer is short, and we must needs make the most of it. I am using *Leucophyton Brownii* as a carpet for our Begonias. It is very effective, much admired, and seems to be very little grown at present. Cuttings are raised in the early spring from soft growths, roots are emitted from the sides of the soft stem, and no hard piece will grow. I also use Standard *Heliotrope* var. Lord Roberts, thin pillars of *Bougainvillea Glabra* var. W. K. Harris—a variegated variety of much beauty, and very free-flowering; a few standard *Fuchsias*, young plants from three to five years old of *Cordyline Australis* and *Cordyline Indivisa*, *Veitchii*, *Grevillea Robusta*, last year's seedlings; *Eucalyptus Globulus*, late sown plants last year; *Eucalyptus Resiniferus*, and *Citriodora*, early sowing last spring; these with some two year old bush plants of *Calceolaria Amplicaulis*, will make a selection from which most gardens can get standards fairly easily grown. For vases and centres of large beds I also use large quantities of *Pelargonium Clorinda* grown from August cuttings, and kept growing all the winter they make big plants in 7-inch pots for planting in June, which flower profusely all the summer. In fact I consider this *Pelargonium* one of my horticultural finds; I only know of it as used for specimen plants in other gardens. I use it in place of the *Geranium*; the tone of colour is more pleasing, the foliage is slightly scented, the plant stands plenty of wind, and wet or sunshine it always has some flowers open. For vase work it is the best thing I know.

The rock garden is at its best. All the early bulbs as they pass out of flower should be carefully noted or marked to prevent their disturbance and from other things being planted on them during their resting period, which is during the summer months. Seeds should be sown at the end of the month of *Cineraria*, *Matador* and *Cactus Blue* of the *Stellata* type. I also plead for the old florist's type *Superba*. The *Stellata* type, as shown in the Dublin shows, are wonders of cultural skill; but no one could conscientiously call the colours of the flowers beautiful.

Seeds of the *Herbaceous Calceolaria Humea Elegans* and the main batch of *Cinerarias* should be sown the first week in June.

I omitted early in this article to mention that all the Chinese *Primulas* should be sown from the beginning of May to the first week of June. The *Stellata*, doubles or the *Gigantea* type; but the doubles are a little slower in growing and should be sown first. For all the above seeds the pans should be prepared several hours previous to sowing the seed and well watered through a fine rose, and allowed to drain. The seed should be sown thinly and lightly sprinkled with clean sand, covered with a sheet of glass, shaded with paper until germination takes place. A shady corner of a cool greenhouse will be the best place until the seedlings appear, after which a cold frame shaded by a north wall, where plenty of direct light and air can reach the seedlings and no direct sunshine will be an ideal place until September to grow them. Watch out for slugs, especially with the *Calceolarias*.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

FRUIT PROSPECTS.—When I wrote last on this subject—in February—the extreme precocity of vegetation was causing serious apprehension amongst fruit growers. Since then, however, we have suffered under a long spell of most unpleasantly cold weather, which, nevertheless, has had the good effect of so retarding the growth of fruit trees that now their condition is about normal. The appearance of the trees at the present time indicates a good fruit year, but, of course, a good deal depends on the weather during the first half of May. Most kinds of apple, pear and plum are carrying a tremendous crop of blossom in various stages of development. Early flowering plums, such as *Diamond* and *Angelina Burdett*, and pears such as *Louise Bonne de Jersey* and *Vicar of Winkfield*, experienced several very hard frosts when in full bloom, but I have often seen them bear fine crops after similar uncongenial weather when in flower. Judging by the number of eggs I have discovered lately, we seem to be in for a bad infestation of apple-sucker this season, and it will well repay owners of orchards to spray for this pest early in May, just before the blossoms open, or as soon as the petals have fallen. The fine spray should be driven well into the trusses, as it is here that this insect does its fell work. Lime sulphur at summer strength, or a nicotine wash, can be used. The former will also help to prevent scab, whilst the latter will kill any early aphides that are at large.

STRAWBERRIES.—The Dutch hoe should be used frequently between the plants to encourage active growth and conserve moisture before the straw or litter is placed around them. If strawy litter from the stable yard is used it should be put on without delay so that all impurities will be washed out of it by rain before the fruit begins to ripen, but if clean straw is used it need not be applied until the flowers are beginning to open. The advantages of the latter system are that hoeing can be continued longer, which will ensure cleaner beds—a great advantage this where perennial weeds are troublesome—and also, the straw can be left loose among the plants, thus affording some protection from late frosts; rain will usually beat it down into position by the time it is needed under the fruits. A good dressing of soot or lime should be sprinkled around the plants before putting on the litter as a deterrent to slugs. It is advisable to place the nets in position just before the flowers open as a protection from late frosts, which often destroy a large percentage of the best flowers. The trustees should be removed from plants in beds formed this spring, and the hoe used frequently amongst them.

RASPBERRIES.—Thin out the young suckers as soon as they are about six inches high; by that time it will be possible to see which are likely to make the strongest canes, and these should be given plenty of room to develop freely and obtain plenty of light and air. Any suckers at too great a distance from the parent plant or from the rows should be removed. Raspberries should be mulched without delay now if not already so treated.

WALL FRUIT TREES. Nearly all kinds of trained trees will require attention during this month. Disbudding and stopping the growths are operations that will not brook delay if trees are to be maintained in health and fruitfulness. Morello cherries, peaches and nectarines fruit on the young growth of the previous season, therefore provision should be made for young shoots to replace those fruiting this year, and all superfluous shoots either pinched back or rubbed out entirely. Leading shoots can be stopped at the fourth leaf if not required to extend the tree. By eliminating these unnecessary growths, those left will have every encouragement to develop and form healthy foliage and well-ripened wood, the former being essential to the development of this year's fruit crop, whilst the latter will ensure the future well-being of the tree. Outdoor figs also fruit on the previous year's growth, so that the above remarks apply equally to these. Less disbudding is required with apricots, plums and pears, as these are encouraged to form fruiting spurs, so that all that is necessary with these is to rub off any badly placed shoots, such as those growing at the back of the branches, and thin out the remainder, leaving those that are placed to the best advantage. These should be stopped at the fourth leaf, excepting the leading shoots if the wall space is not filled. A good shoot should also be left unstopped wherever a new branch is required. It is a good practice when disbudding and stopping to do the top half of the tree first, leaving the lower half till a few days later. Trees are always inclined to grow more strongly at the top, so that by pinching the upper half first the sap is diverted to the lower shoots to their great advantage. Thinning of the fruit can be carried out concurrently with disbudding. At the first stage only the badly placed fruits should be removed. A further thinning can be effected a few days later, but with stone fruits the final thinning must be deferred until after the stoning period, as these often thin themselves only too well at that time.

GENERAL REMARKS. The constant use of the hoe amongst fruit trees and bushes during dry weather is most beneficial to them, conserving the moisture in the soil and promoting steady and active growth. All suckers should be removed while doing this, as their development is at the expense of the tree. The first sign of aphid should be the signal for an immediate spraying with an insecticide. These insects increase rapidly, and it is almost impossible to combat them once they have caused the leaves to curl up. If peach or nectarine trees are affected with the leaf blister (*Ectoasis deformans*) the affected leaves or portions of leaf should be cut off and burnt, afterwards spraying the trees with Sulphide of Potassium at $\frac{1}{2}$ oz. to the gallon of soft water. Grafts that are growing strongly should have the clay removed and the ties loosened, but care must be taken not to do this prematurely. Growth proceeding from the stock should, at this time, be rubbed off; the union being complete the scions will be well able to utilise all the sap available. Remove all materials used for protecting the trees from frost immediately all danger from this cause is past. Any delay in doing this tends to weaken the trees by promoting soft growth, which is easily injured by the first cold wind or heavy shower.

The Vegetable Garden.

By J. B. Pow, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

MAY, a very busy month in the vegetable garden. Thinning and transplanting will take up much time during the next few weeks. Weeds are appearing. The use of the hoe during dry weather will help to subdue the weeds and give much benefit to the young crops. The free use of nitrate of soda, applied at the rate of 1 oz. to the square yard, will be very beneficial to the young crops. Sulphate of ammonia may be used at the same rates if preferred, but it takes longer to act on vegetable life.

BROAD BEANS. It is not too late to make a sowing of broad beans. Early Mazagan may be sown up to the end of May. Beans sown late autumn will soon be in flower; the points should be pinched out to prevent the attack of blackfly and hasten podding.

FRENCH BEANS. Dwarf beans may be sown every fortnight. Draw out the drills 2 feet apart and 3 inches deep, place the beans tolerably thick; as soon as up, carefully thin, and slightly earth up to prevent the wind blowing them about. Runner beans may be sown again about the middle of the month. Sow the rows from 12 to 14 feet apart, and crop the ground between with other vegetables. If preferred they can be grown on ground without stakes. Under this treatment they must have their tops pinched off when about 18 inches high. If this plan is adopted the rows may be sown 3 feet apart.

PEAS. Continue to sow mid-season varieties every ten days. Do not omit to earth and stake peas early, as if the plants once fall over they will never take to the supports.

POTATOES. Earth up early potatoes; late varieties may still be planted.

TOMATOES. Plants grown under glass for planting outside should be grown under cooler conditions by this date, and be fit for planting out by the end of the month. When grown in the open ground tomatoes require a warm position. They may be trained to stakes 1 foot high, and the side shoots kept well thinned, to allow all the strength to pass into the fruits.

SPINACH. Sow spinach in deep rich soil, thin out the plants to 6 inches apart.

ONIONS. The main crop of onions is now over ground. Dust between the lines with soot during the month of May, at intervals, to ward off the onion fly.

CABBAGE. Sow a pinch of some late-keeping varieties. Carter's Christmas Drumhead is one of the best keeping sorts I have sown this past season. Salsify and Scorzonera may be sown at the first opportunity; draw the drills $1\frac{1}{2}$ feet apart, and thin out the plants to 1 foot asunder.

CARROTS. Thin during showery weather, and give a dressing of soot. A sowing of Early Horn or Scarlet Horn may be sown at intervals to keep up a supply of young fresh roots.

SALADS. The first sowing of chicory may be sown in deep rich soil. Sow in rows 1 foot apart. When the plants are strong enough, thin out to 6 inches in the lines. Mustard and cress should be sown frequently, and radish every fortnight. Lettuce may be sown every three weeks.

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EDITOR—J. W. BESANT.

Dwarf Violas for the Rockery.

By "GARDENER."

THE florists' varieties of Violas are very well known to gardeners, and rightly occupy a prominent place in the flower garden. The tiny Alpine species, however, are not so generally cultivated even where collections of Alpines are grown and appreciated. Of late years Violas have received more attention, especially since *Viola gracilis* became more plentiful.

The cultivation of Alpine Violas is not difficult generally, though some few of them are "miffy" and some are not good perennials, and require to be propagated from seed or cuttings annually. Of such is *V. gracilis*, alluded to above, which has a habit of dying off after flowering. Any which have a tendency to do this might be cut over before the flowers have all faded, and kept moist to induce the production of young shoots suitable for taking as cuttings. *Viola arenaria rosea* makes a pretty mound of leaves surmounted by rosy flowers, and grows well in a moist position, doing well from year to year.

Viola bosniaca is possibly one of the most popular of all with lovers of Alpines, and grows freely in gritty soil, in some gardens seedling freely about the paths. The typical plant has rose-pink or old rose-coloured flowers, and is

one of the loveliest plants of the rock garden in its season. Like most plants which become popular it has been raised in quantity from seeds, and there are several varieties, though not all are of the neat habit of the type. Probably when cultivated it hybridises with other species and loses some of the characteristics of the type. *V. bosniaca* *Alumbar* is a purplish

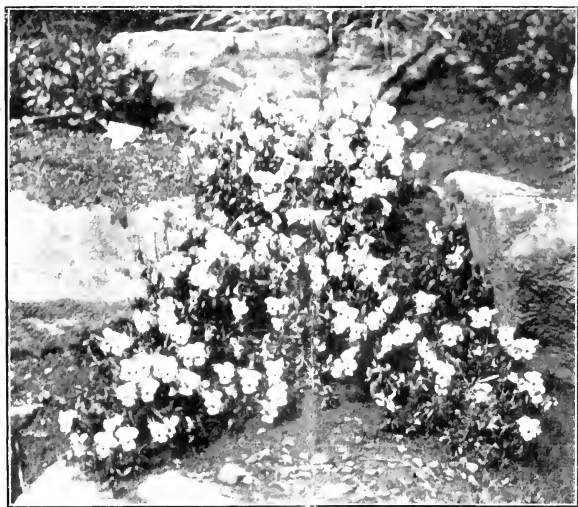
blue form, of coarser growth but quite effective when seen in a mass. One or two hybrids have appeared in gardens, but so far as I know have not been named.

V. calcarata, commonly referred to as the Pansy of the Alps, is a pretty species, with usually violet-purple flowers, though a white variety is also known and a yellow is sometimes referred to.

V. cenisia is a little gem, not always easy to keep.

Moraine treatment would probably offer the best chance of success. The flowers are violet-blue, and the plant is said to be a lime-lover.

V. cornuta is pretty well known, and is a useful species of considerable beauty. It is a plant of tufted habit, carrying an enormous number of flowers through spring and summer; the flowers are blue, and form a fine bit of colour on the rockery. A white variety is grown which has rather smaller flowers than



VIOLA BOSNIACA AT THE BUSH, ANTRIM.

the type, but makes quite a good group withal. *V. cornuta* Papilio differs from the others in the enlarged upper petals which give the flower a supposed resemblance to a butterfly.

V. encuculata, or the Hooded Violet, as it is sometimes called, is a North American species, with pale blue or often white and blue flowers. It is quite a pretty plant, and likes plenty of moisture.

V. glabella is also American, and makes a pretty mound of leaves from among which rise pretty yellow flowers: *V. gracilis* is one of the most charming of all, producing a dense mass of deep violet blue flowers, each with a tiny white "eye." This species, as alluded to above, flowers so freely that the plants not infrequently die afterwards: it is well, therefore, to cut over sufficient plants before they have flowered too long to induce young shoots to push up for cuttings.

Quite a number of varieties have been sent out of recent years, but not all are of the true *gracilis* type: several, such as Golden Fleece, though pretty enough, are too far removed from *gracilis* in habit and shape of flower to be considered as varieties, though they may be hybrids. *V. gracilis* Blue Jay is a pretty plant of the true *gracilis* habit, and bearing quantities of lovely light blue flowers: it is also a better grower than the type, and not so liable to "go off." *V. gracilis* *chumcea*, a pale yellow, is also of the true type, and makes a lovely companion to the others.

V. hederacea, generally listed in catalogues as *Erpetion reniforme*, is an Australian species of doubtful hardiness, though it ought to succeed in the milder parts of Ireland. The flowers are usually blue and white, with scarcely any spur, as seen in most species, and the leaves have some resemblance in shape to those of the ivy, hence the specific name.

V. munbyana is a pretty species, somewhat of the *cornuta* habit, but with larger and rounder flowers. It is a good grower, and makes a fine colony on the rockery. There is a yellow variety, much like the type in all respects save colour.

V. olympica is a loose-growing species, forming a spreading mass. The flowers, though not large, are freely produced on long, wiry stems, and in colour are pale blue: should be cut back as soon as the flowers are over.

V. pedata is at once the joy and despair of many an enthusiast. A lovely plant, bearing finely-divided leaves surmounted in season by charming blue or blue and white flowers: it is at the same time one of the most difficult to preserve in health. Occasionally it will grow well for a season in sandy, peaty soil, but fails to reappear the following year. Pot-grown

plants often live for some time, but I have seldom heard it called an easy doer. Perhaps some modification of the now popular moraine will yet be found to suit it. In any case, no true plant lover will care to give up experimenting while plants can be obtained.

V. rothomagen is quite a pretty Violet, bearing bright blue flowers in summer. It is a good grower, and useful in various positions.

V. rydbergi is an interesting species, bearing numerous white flowers. A good plant for a moist, half shady position, though flourishing quite well in the sun if the roots are kept cool.

Generally speaking, most of the *Violas* prefer at least some shade from the heat of the summer sun, but a few, such as *V. bosniaca*, seem to live best in a sunny aspect, and make seeds freely in such a position. Some, like *V. cenisa*, seem to prefer a deep, gritty soil, and others, like *V. cornuta*, will grow almost anywhere in soil of average quality.

The Rose Garden

May has left us, and gone in its train are the cold biting winds, heavy rains, and early morning frosts. The full and gorgeous foliage so dear to the heart of the rosarian greets us on all sides, and gives promise of a rich harvest of bloom. But, unfortunately, there are always the reservations to the cheeriest wish. With the coming of summer arrive also the many pests that try the patience and require all the ingenuity at one's command at least to counteract, if not totally to prevent, the consequences of their unwelcome attentions. The larva of the sawfly, honey dew, mildew; later on the greenfly, and the cockchafer grub will exact their daily toll if left unchecked, and instead of blooms worthy of appreciation we shall have impoverished and misshapen flowers deserving of execration by the mildest of rose growers.

From this date forward the syringe should be daily used. The foliage will be thoroughly cleansed, and the greenfly should get no encouragement to make his visit a permanent one. And with the syringe, too, there is the correct method, not that of the garden hose, but it should be used so that a strong, fine spray may be obtained. By using it in short, quick jabs the greatest benefit will be had. For the various forms of caterpillar, hand-picking is the only reliable remedy. When the young leaves at the points of the growing shoots appear stuck together there will be found the microscopic but quickly-maturing "worm in the bud" that does more damage

than greenfly or even mildew. Finger and thumb must nip off his harmful career. The larger caterpillars will carry on their depredations by night, and their attentions in a few hours will destroy the most promising buds. Their hiding places should be diligently searched, and a nocturnal visit will be well repaid by many captures. On this account, any growing of sheltering plants too near the roses should not be allowed.

Violas of all shades of colour are the best addition to a rose bed, but in moderation. They form the best possible edging, but it is unwise to scatter them through the bed in every vacant spot. In congenial soil they quickly grow into large unwieldy masses of foliage; they are not so productive of bloom in this way, and afford harbourage to pests that one could dispense with. For this reason, too, if for no other, only young plants from cuttings should be used in edging.

Watering will need care during dry seasons. Generally speaking, a good drenching once a week will meet all requirements, mere sprinkling will be only harmful by encouraging the surface roots. A constant use of the hoe, in keeping the surface free from weeds and the soil fine and "dusty" to check evaporation, will be of the utmost advantage, and one could easily go a long way in the footsteps of the "dry gardener" without making any mistake. Liquid manure should be used sparingly except with old-established plants. It should not be resorted to until the flowering buds are well formed and on the point of opening, and then only after a plentiful watering from the contents of the tub not the tap. If well a-rated soot is convenient, let some be sprinkled around the roots and watered in, a better colour in the blooms will be the ready response.

A number of Roses, such as the familiar Frau Karl Druschki (I do not care for the war name, Snow Queen), throw out clusters of buds on the flower stem, the centre one growing largest and with a short shank. In such cases, unless one requires a single extra large sized bloom, it is wisest to remove the large bud and allow the others, which may be reduced in number, to grow on. Roses that are inclined to "ball"—Dean Hole, W. E. Lippiatt, and even the old favourite, La France—often refuse to open in most congenial days after a few showers. The outer petals decay and seal up the body of the flower. If these petals are removed in time a passable bloom may be had, and a thorough watering of these roses will often act as a preventive.

Many of the recent introductions having

"art shade colours" are frequently not seen to advantage. Exposure of the bloom to one day's scorching sun is sufficient to completely change the colour. Lady Mary Ward, Ophelia, The Duchess of Wellington, Harry Kirk, and scores of others become almost unrecognisable at the close of a summer's day. The slight trouble of shading will be amply recompensed by the sight of a beautiful Rose with its exact colouring, and the bloom will be preserved beyond its usual time. No elaborate appliances need be employed, the simpler the better. If the heavy rains are kept off it will be an advantage.

Roses of extra vigorous growth may be got to produce even more than the usual amount of bloom by having their longer shoots pegged down. The tip should be fixed so that there is a gradual slope from the base, not, as often happens with the pegged shoot, in the form of a semi-circle, thus preventing the proper flow of the sap to the growing bud.

Standard Roses, owing to their peculiar and almost unnatural growth, should be so attended that the flow of sap through the brier be kept regular and sustaining to the head. In dry weather the stock should be sprayed with clean water, and any growth on the stock rubbed off. If the rose head is inclined to be top heavy, the longer shoots should be tied to the supporting stake, avoiding any undue straining at the junction of the bud.

Some rose growers have the somewhat pardonable weakness of allowing the full-blown flowers to remain on their trees long after their bloom has departed. This may be observed especially in gardens where the flowers are few and far between and where the owners have a hesitancy in leaving the plants bare even for a short time. Such a practice is injurious to the health, and will shorten the period of productivity of the Rose, and should not be followed. If not required for cutting, once the flower begins to fade it should be removed and the shoot cut back to the next strong flowering shoot, which will then mature more quickly, and in a couple of weeks throw forth a worthy specimen of the garden's best flower. J. A. F. G.

Trial of Autumn Sown Onions at Wisley.

THE ROYAL HORTICULTURAL SOCIETY will carry out a trial of Autumn Sown Onions at Wisley during the ensuing season. Seeds for trial (one packet of each variety) should be sent so as to reach the Director, R. H. S. Gardens, Wisley, Ripley, Surrey, from whom the necessary entry forms (one for each variety) may be obtained, on or before Monday, 19th June, 1916.

Are Bamboos worth Growing ?

A GLANCE at the charming illustration of *Phyllostachys Quiloi* growing at Trebagh, in Cornwall, would probably induce many people to answer in the affirmative, but in the matter of climate Cornwall is favoured, though perhaps not more so than the south and west of Ireland.

In many other localities, however, where bamboos have been planted they are undoubtedly a melancholy sight for seven or eight months of the year, and it becomes a question whether many more worthy subjects could not be used with far better effect. If one were to confine oneself to members of the grass family, to which bamboos belong, would not more satisfaction be got from bold groups of Pampas Grass, *Gynerium argenteum*, and the Giant Reed *Arundo Donax* arranged with masses of *Miscanthus japonicus* and the variegated variety *Zebrina*? These are handsome grasses which look well all summer and into autumn.

Certainly, where bamboos flourish they are noble objects in autumn and winter, but in many cases from late winter on into early summer the less one sees of them the better. No doubt position and soil have much to do with success in bamboo culture. One cannot but remember that in Kew Gardens, near London, the Bamboo Dell is a notable feature; but there a fine position has been secured. Sheltered pretty well all round by rising banks, surmounted by tall trees and clothed with various shrubs, cold harsh winds are practically excluded, and although the climate there is by no means ideal the bamboos are well worth seeing.

In Ireland much success has attended the

planting of bamboos at Fota, Darreen, Ross-dohau, &c., but, as is well known, the climate in these localities is practically sub-tropical in character. This is not so on the north-east coast and in many parts of the midlands, where very severe weather is not infrequent, and where, especially on the east coast, the rainfall is not abnormal.

It seems to the writer, therefore, that the question as to whether "Bamboos are worth

Growing" is one for earnest consideration, and the views of growers in Ireland or elsewhere would, I am sure, prove of interest to readers of *IRISH GARDENING*.

Mr. W. J. Bean, of Kew, who has a long experience as a cultivator, recommends the following for trial where success is doubtful:—

Arundinaria anceps,
Fastuosa, *Japonica*,
Nitida palmata,
Ragamowski, *Phyllostachys Henonis nigra*
and *viridis-glaucescens*.

DOUBTFUL.



PHYLLOSTACHYS QUILLOI AT TREBAGH, CORNWALL.

Beekeeping.

THE past spring has, for the most part, been unfavourable for bees, there being only occasional short spells during which they could obtain either pollen or nectar.

Easter week being fine and flowers plentiful they secured some nectar and a good supply of pollen. The first half of May was a very cold, wet period, more like mid-winter than early summer, and the snow on the hills gave a finishing touch to the bleakness of the prospect. The change to warmer weather set in on the 15th, and for the four following days many stocks that were running bare in stores secured a good supply and have since made good progress. Stocks with plenty of winter stores to fall back on built up steadily through the cold weather, many being sufficiently strong to crowd into crates of sections by the time the apples started to unfold their

blossom. Several swarms from straw skeps and also from frame hives came off on the 18th and 19th May.

The temperature dropped on the evening of the 19th, completely cutting off the supply of nectar which tempted those swarms to form a new home. I saw three of these swarms on the 22nd and their plight was pitiable indeed, staggering from starvation, and had made no attempt at comb-building. I saw them placed on full sheets of foundation and well supplied with syrup made with 3 lbs. cane sugar to one quart of water. If those bees had been left without food for about another day they would have died from starvation. Early

swarms are doubly valuable when they get a good start, and unless it is certain that they can obtain sufficient from natural sources they should get at least one quart of syrup, given as quick as they can take it immediately after being placed in the hive in which they are to remain. Where honey is preferred

to increase of stocks every effort should be made to mitigate the risk of swarming. When bees contract the swarming fever, the most ingenious devices of the bee-keeper will not stop it, and much valuable time may be lost during the best of the honey flow. Giving room in the brood chamber and in crates or supers in advance of requirements, keeping the hive cool by shading with green branches or canvas awnings, and giving plenty of ventilation during very hot weather, assist in checking a disposition to swarming. Removing frames of brood to form nuclei or strengthen weaker stocks, and substitute empty combs or comb foundation generally prove an effective preventive of swarming. If the outer combs in the brood chamber be broodless and filled with honey, it should be extracted, and the combs returned to

provide additional space for brood rearing. If after all these precautions the bees still persist in swarming and deserting the crates or supers, remove the parent hive to a new stand, where it can be utilised to form nuclei, then hive the swarm on the stand of the parent stock. If the swarm issued from a hive containing ten or eleven well-filled frames of brood, it should be limited to at most eight frames of drawn-out comb or full sheets of foundation. All supers or crates of unfinished sections should be removed from the parent hive and placed on the swarm. Treated in this way, especially if it can be done early this month, bees work with redoubled energy, and invariably store nearly

as much honey in supers or sections as if they had not swarmed.

Supers of shallow frames for extracting and crates of sections should be in readiness in anticipation of a heat wave by the time the white clover comes into bloom. If the weather conditions be right honey is stored rapidly



SAX. DIAPENSIODES

(see p. 89)

from this source. If, however, the temperature should be too low, crates must only be given to the extent that bees can keep them well crowded, otherwise there will be a large percentage of second grade sections. In what experienced beekeepers would term a moderate honey-flow I would advise beginners to place the empty crate on the top of the partially-filled one. In this way there is less risk of over-superning, and if a break in the weather occurs after the bees have started storing in the top crate, it is from the top crate they retake what honey they require for their subsistence. During a real good honey flow from white clover, when a good stock will fill a crate of sections in three or four days, it is advisable to place the empty crate under the partially filled one. Remove crates of sections immediately they are finished, as travel stain

spoils their appearance and lowers their commercial value.

The successful management of bees depends very largely upon having each stock headed by a vigorous and prolific queen. Under modern methods of management in moveable comb hives, queens produce a greater number of eggs in a season and become exhausted earlier in life than those kept in small fixed-comb hives. It is not, as a rule, advisable to keep queens past their second season, except in the case of an extra good one of some special race. Nuclei should be formed early this month, either from hives that may have swarmed or combs taken from hives to lessen the risk of swarming. It is advisable to have the young queens mated during the best of the season, when drones are vigorous and numerous. The owners of one hive, providing it is large enough to hold thirteen frames and a dummy, can form a nucleus of three frames, on one of which there should be a queen cell, and place them behind the dummy, and making a small entrance for the bees of the nucleus to work through. The space of the frames taken from the stock should be filled with frames of foundation. A small strip of canvas or jute will keep the nucleus separate from the stock, although during a good honey flow I have permitted the nucleus to have access to the crates, but unless they are separated immediately the honey flow stops the stock in front is almost certain to rob the nucleus.

PETER BROCK.

Fairview, Enniskillen.

Antirrhinum Nelrose.

THIS very beautiful Snapdragon caused some considerable interest when introduced some years ago, and still remains one of the best of its kind. The colour of the original plants was of a charming clear pink, and the length of the flower spike was quite remarkable in pot-grown plants. Introduced to Britain from America by Messrs. Wells, of Chrysanthemum fame, it was primarily intended for pot culture, and is said to be largely grown under glass in the States for the cut flower trade. There seems no reason, however, why it should not be grown for summer-flowering outside, and one can imagine very fine effects from bold masses planted in the herbaceous border or beds about the grounds. Seedlings vary somewhat in colour from pale to deeper pink, and during May a fine batch of pot-grown specimens has been adorning the flower house in the Botanic Gardens at Glasnevin.

FLORIST.

Wallflowers.

Few people seem to realise the great advance which has been made in the production of colour varieties of Wallflowers during the last few years. There must be quite a score or more distinct shades and colours now obtainable, and very fine effects are possible by tastefully arranging a few harmonising shades. In these days when economy in the garden is a necessity and the bulb order has to be kept as low as possible, much may be done in raising spring flowers from seeds, which by comparison are cheap, and give results not inferior to the most gorgeous display of Tulips and other bulbous plants. The labour of pricking out a sufficient number of plants is not very alarming, and comes at a time when most of the cropping and planting has been done in the garden. Those who love flowers but have small gardens without accommodation for nursery beds will find they can buy a few dozen Wallflowers, of different varieties, very cheaply from any market nurseryman.

The following is a selection from among those known to the writer, but the arrangement of the colours is best left to the taste of the individual concerned:—Fire King, a very brilliant variety of a bright orange colour, very attractive; Harbinger, an old variety of a rich brown colour, valuable as usually the earliest to flower; Orange Bedder, one of the newer varieties, giving a large percentage of rich orange colour, becoming yellow with age; Vulcan, though by no means new, yet a first-class sort of dwarf habit and with large rich crimson flowers; Blood Red, a good strain of this old favourite is hard to beat; Golden Monarch is a fine rich yellow of good habit and better than the old yellow variety; Primrose Dame is paler, almost sulphur yellow, and very attractive in combination with others; Ivory White and White Dame are two pretty creamy-white varieties which look charming in contrast with the darker kinds; Eastern Queen is of a colour hard to describe, but develop ultimately to salmon-red or rose; Ruby Gem becomes ruby-violet when fully open, and is capable of a very pleasing effect; Ellen Willmott is a handsome ruby-red variety, tall and strong, with large full flowers; Belvoir Castle is a useful yellow of dwarf habit, suitable for planting with a taller dark variety.

A good many others may be found in catalogues, and selection is largely a matter of taste.

CHEIRANTHUS.

Bold Rockwork.

IN the last issue of IRISH GARDENING an illustration of Saxifrages on a small rockery was given, demonstrating the fact that as far as the cultivation of the plants is concerned huge

Something of the same effect can be got by using a number of smaller stones of a shape suitable for placing together, the spaces between them being carefully filled with gritty soil so as to resemble one large rock which has been cracked. In the cracks Saxifrages of many kinds and other small Alpines establish



BOLD ROCKWORK, WELL PLANTED, AT CURRAGH GRANGE, KILDARE.

stones are not essential. Where, however, position and circumstances are suitable, fine bold effects are possible by the use of a few good stones well placed. In the illustration shown in the present issue, which is from a photograph taken in the rock garden at Curragh Grange, we see an instance of what can be done. Advantage has been taken of a natural incline to throw up the banks, and by carefully placing a few bold stones the effect of a rocky valley has been obtained, and as there are stretches of good gritty soil intervening between the rocks, many fine colonies of good Alpines find a happy home,

themselves very well. This plan may be adopted, too, when large stones are scarce, and may be made to look like an outcrop either from a slope or from flat ground, the important point being to ensure that the cracks are continuous to the main body of soil, either behind or below the stones, as the case may be. The construction of rock-work is largely a matter of taste and position, and most people have to make the best of what stones they can get. Experts have much to say about stratification and so forth, but no hard and fast rules can be laid down which will suit all cases.

ROCKFOIL.

Notes.

Podocarpus chilina.

A NATIVE of Chili, this is an evergreen tree suitable for the warmer parts of Ireland. The leaves are narrow and tapered at both ends, and many of them are curved. Male and female flowers are borne on separate plants, and the fruits, which I have not seen, are described as egg-shaped, sometimes produced in pairs. The specimen illustrated from Penjerriek, in Cornwall, is a very fine one about thirty feet high; a specimen at Kilmacurragh, Co. Wicklow, is possibly not far short of it, though I have not the actual measurements.

B.

Primula Werringtonensis.

ANOTHER of Mr. Forrest's discoveries, this may be described as a hardy *P. obconica*, since it was found at an elevation of 10,000 feet and facing north. It remains to be proved hardy, but there is small doubt that many Irish hardy plant enthusiasts will find a suitable position for it, and those lovers of Alpines who all too rarely contribute their experiences to IRISH GARDENING will scarcely be deterred from giving it a trial from any doubts as to hardiness. The flowers are rose red, but are said to vary from seeds.

Gaultheria Veitchiana.

INTRODUCED from China some years ago, this has so far proved quite hardy and seems likely to be a very useful evergreen either for a shady, moist position in the rock garden or as a carpet for other shrubs of the Heath family. It is a low grower, the branches spreading out horizontally and bearing in spring dense racemes of white flowers. The leaves are stiff, about two to three inches long and an inch to an inch and a half broad. The plant spreads freely by means of underground stems, and is eminently suitable for moist, peaty soil, and would probably thrive in sandy loam mixed with peat or leaf-mould.

Saxifraga Delavayi.

FROM China, like so many new plants of recent introduction, this new species belongs to the Megasea section, and will probably soon rank

as one of the best. The leaves are bronzy-green, and, though large, are not so coarse and aggressive as those of some of the older species. The handsome flowers are almost carmine-pink, and look very pretty hanging from the stout scape. Planted in masses on sloping banks or in front of shrubberies and plantations this should be one of the first herbaceous plants of the year to make a fine display of colour, flowering well in the middle of April and probably earlier in a normal season.

Saxifraga cernua.

A VERY pretty plant, the merits of which are not sufficiently recognised. Growing about six inches high, it is, during May, a beautiful object when surmounted by its comparatively large white flowers. The flower stems arise from among small glossy green-lobed leaves, while in the axils of the stem leaves tiny red bulbils are produced which add not a little to its charm. *S. cernua* is found wild on the summit of Ben Lawers, in Scotland, and thrives in a small bog at Glasnevin, where it is lightly shaded by the thin branches of an old pine tree. During May a group some fifteen inches across has been an object of much interest and beauty.

Primula silvicola.

THIS is a new Chinese species, stated by Mr. Forrest to have been found by him in shady thickets at 9,000 feet elevation. A specimen in the Botanic Gardens at Glasnevin has flowered lately in a pot, and gives promise of being a good doer though yet to be tried in the open. The flowers are produced in whorls on a tall stem, said to reach from two to three feet high in nature. The flowers are reddish-purple, but probably vary according to exposure. Though untried as to hardiness, it is possible that when stock has been raised it may prove hardy in a sheltered nook in the rockery, and may probably be found useful for planting in colonies under trees where it would get shelter from above.

Lithospermum Gastoni.

THOUGH less showy than *L. prostratum*, this is nevertheless a pretty and interesting species. The flowers are produced in clusters at the ends of the shoots, and are of a good clear blue, with a white centre. The leaves are larger than those

of the prostrate Gromwell, as the *Lithospermums* are called, being broadly lance-shaped and somewhat hairy. The whole plant is only about nine inches high when in flower, lengthening to a foot or so before all the flowers are over. Reputed to be a lime-lover, Gaston's Gromwell flourishes in moist peaty soil at the base of the rockwork, but probably gets enough lime, as the staple soil of this district is of a limy nature.

DUBLIN.

Primula rufa.

ALSO one of Mr. Forrest's introductions, and coming near to *P. Forrestii*, in fact it is difficult to believe that it is more than a variety. One hopes, however, that it may prove a better grower than that fickle species, which still remains extremely difficult to establish. *P. rufa* differs from *P. Forrestii* in the longer, narrower leaves and possibly in the longer flower scape; otherwise in the texture of the leaves and colour of the flowers there is but little difference. The collector, however, describes it as differing in habit, forming large cushions several feet in diameter, while *P. Forrestii*, if memory serves aright, was described as forming a long woody rootstock hanging down the face of limestone cliffs.

Saxifraga diapensioides

THIS is one of the prettiest of the *Kabschia* section, forming tight little rosettes of tiny grey leaves, from among which are produced the flowers, which are pure white, and three or four together on fairly long stems. A native of the Maritime Alps, Southern Switzerland, and the South Tyrol, it requires very gritty, well-drained soil, and succeeds best in a crevice where it is protected from the full blaze of the sun. To get stock, it is best to grow one or more plants in pots, dividing them up into small pieces every year after flowering. If lined out into shallow boxes of gritty soil, they soon make nice tufts, and can then be potted up or transferred directly to a fissure in the rock garden.

ALPINIST.

Acer Pseudoplatanus Brilliantissima.

THIS is a very beautiful variety of the common Sycamore or Plane Tree, as it is called in Scotland. Its beauty lies in the lovely soft pink colour of the tender young leaves as they unfold in the spring. Towards the end of April

and the first weeks of May it is an extremely pretty object about the grounds, being immediately noticeable among other trees and shrubs, and looking particularly well on a lawn when the grass is assuming its first soft green hue. An additional advantage lies in the fact that it is of very slow growth, at least on light soil, and thus may be planted in positions where a very large tree would be quite unsuitable. As the leaves expand to their full development they assume the normal green colour of the type and still remain interesting.

ARBOR.

Helicodicerus crinita.

THIS extraordinary Aroid has flowered here lately, and, although not a plant one would recommend for general planting, it is nevertheless not without interest to some. Even suburban villa gardeners occasionally get hold of a root and are not a little astonished and pleased when the handsome divided leaves and mottled stem arise, surmounted soon by the huge dark brown flower spathe, which is covered with hairs on the inside. The true flowers are borne on the spadix which arises from the base of the spathe, just as in the case of the better known "Arum Lily."

The root is tuberous and, if to be cultivated out of doors, should be planted close under a wall, since being a native of Corsica the plant is not absolutely hardy. It may also be cultivated in a pot, withholding water when the leaves have died down.

J. W. B.

The *Romanzoffias*.

THESE are pretty little North-American plants flourishing in damp half-shady positions in the rock garden. They belong to the natural order Hydrophyllaceæ, to which also belongs that most beautiful of blue-flowered annuals, *Phacelia campandaria*.

The best known species is *R. sitchensis*, native of the Sitka Islands, and popularly known as the Sitka Water-leaf. It is a low-growing, somewhat spreading, plant with long-stalked, rather kidney-shaped leaves and pretty white flowers. *R. Suksdorfii* is the smallest species with short stalked leaves and racemes of white flowers. *R. unalaschensis* comes from the Aleutian Islands off the coast of Alaska. It is a strong grower, the leaves larger than in the other two species and carried more erect. In this case, too, the flowers are white. All three should be raised frequently from seeds which are produced fairly freely.

Notes for Novices.

VEGETABLES.—The latest sowings of peas should now be made. Autocrat is one of the best for late use. It is also a good plan to sow an early pea about the middle of the month, using for preference a dwarf variety, such as Early Bountiful, which would be more easily protected in the event of a sharp night's frost. For these late sowings the soil should be well prepared, so that they may grow freely and without any kind of check. Hoe deeply between the rows and give copious supplies of water during spells of drought.

When earlier sown varieties have reached a height of two inches, a little soil should be drawn up towards the plants on both sides of the row, and the staking carried out promptly.

Hazel stakes are the most suitable if they can be procured. When staking keep the top of the stakes one foot apart. The more erect the stakes are thrust into the soil the more effectually will the plants be supported.

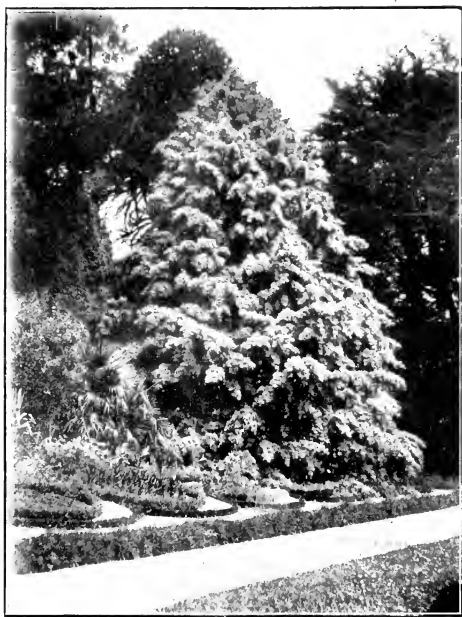
Mildew, which sometimes makes its appearance amongst late varieties, originates generally from the effects of drought and overcrowding.

Late batches of celery will now be ready for planting out. Before removing the young plants to the trenches, make sure they have been well hardened. The trenches should be heavily manured and the soil in fairly moist condition. Lift the plants with a good ball of soil, and plant firm in single rows at nine inches apart. It is well to

water thoroughly immediately after planting out. At no time afterwards should they be allowed to suffer for want of water at the roots. Lightly dust the foliage with fresh soot once or twice a week, to ward off attacks of the celery fly. Stir the soil occasionally around each plant, and syringe the foliage in the evening after a warm day. Where onions, carrots and parsnips are likely to become crowded in the lines, thinning out will have to be resorted to, in order to give those that are left a better chance of developing. Constant hoeing between the lines will do much to promote active growth as well as to keep the ground free from weeds. Cabbage, cauliflower, sprouts and broccoli that were sown early last month will now be ready for planting out. Firm ground will give the best results,

therefore if the soil is of a loose and open texture, it will be necessary to roughly trample the whole surface. Choose showery weather, if possible, for dibbling in the young plants. Cabbage and cauliflower may be planted out at a distance of two feet between the rows and eighteen inches in the row. Sprouts and broccoli must be allowed more room, as they develop larger foliage and require a longer period to come to maturity. Two feet six inches will be none too much space to suit their requirements. Give careful attention to watering until the young plants become well established. If slugs prove troublesome apply fresh soot and lime around the plants in the morning or evening.

FRUIT.—Constant and careful attention must now be given to Cordon apple and pear trees, if one is desirous of obtaining fine specimen fruits. Leading growths should be made secure by tying in neatly, and all laterals or side shoots pinched in order to let the sun play upon the fruits. Thin out the fruits to a reasonable number, say 12 to 20, according to the health and vigour of the tree, so that those that are left may develop into good specimens. Many fruits do not exhibit their true flavour and characteristics unless properly developed. One dish of good fruit is far more creditable and enjoyable than half a dozen poor ones. Unless the roots of the trees are mulched, water should be applied frequently. Feeding with farmyard liquid manure once a week will prove beneficial to the general health of the trees. Strawberry plantations should be



PODOCARPUS CHILINA AT PENJERRICK, CORNWALL.

(see p. 88.)

carefully examined to certify that the plants do not suffer for want of water. Good healthy plants, with prospects of a heavy crop, may easily be ruined through lack of attention to this important cultural detail. If the plants have not previously been mulched, spread clean wheat straw, one inch thick, around the plants, so that the fruits as they approach maturity will be kept clear of the soil. As soon as the first indication of colour is observed, netting must be procured and spread over the bed as a protection against birds.

FLOWER GARDEN.—There are many subjects in herbaceous borders that will now require timely attention as to staking, thinning and weeding. Suitable green painted stakes, in various lengths, should be in readiness. One stake thrust into the ground behind each plant, and the top just

hidden from view, will be ample support. Loop the plant to the stake with fine tarred twine, but do not draw the twine too tightly, otherwise the symmetry and balance of the plant may be spoiled. Many plants, such as Phloxes, Michaelmas Daisies, &c., should have all weak and spindly growths removed, leaving only the strongest and best to form a typical plant. Hoe the borders frequently to get rid of small weeds and give copious supplies of water during spells of drought. As soon as Rose plants commence to form buds, farmyard liquid manure, at the rate of one gallon to three gallons of water, should be applied to the borders at least once a week. These applications will greatly assist in developing flowers of large size and good substance. Keep the surface soil in a free and friable condition by the constant use of the Dutch hoe. Pull up entirely any briar suckers that appear growing from the roots. The "worm in the bud" will probably make its appearance soon, therefore an observant eye must be kept on the look out in order to detect its whereabouts. It will soon do irreparable damage if not found at once and destroyed. Seeds of spring flowering plants, such as Wallflowers, Myosotis, Polyanthus, Violas, &c., may be sown early this month. An east or west border that is not over-rich, but in nice working order, will make a suitable medium. Draw out drills, one inch deep and nine inches apart, and sow moderately thin. Cover lightly with fine soil, and name each sort distinctly by means of a painted wood label. If dry weather prevails, water the seed bed with a fine rose can to hasten germination. Stir the soil between the lines as soon as the seedlings appear through the surface.

M. D.

Hints for Amateurs.

LIFT and divide Primroses which are now out of flower. Strong growing plants can be easily broken up and two or three made from the one original, but where any are weak, only lift and replant. Give them plenty of good soil and leaf-mould, and plant them in a shady, damp place, and there will be no difficulty in obtaining good blooms, and plenty of them, next spring. Polyanthus also may be divided and replanted, but here seedlings give the best results, and if it is possible to obtain a good strain of young seedling plants, they should be planted instead of the divided plants. These notes are especially written for those who only have a small garden, and in some cases with no accommodation for growing on seedlings, which, to do them justice, require plenty of care and space. For such gardeners it is as well to mark specially good old plants and divide them; if well watered and attended to they will give very good results.

In small gardens, too, staking plants, especially staking Sweet Peas, is often a difficulty. This year, for some unknown reason, in the neighbourhood of Dublin ordinary pea stakes are impossible to obtain, and some other method must be resorted to. Wire netting answers the purpose well if good stout stakes are used to support it. Pea trainers are also sold at a reasonable price, which are excellent. Both the netting and the pea trainers are a permanency once obtained, and they are also much more easily stored than pea stakes in the very poor

accommodation for storage supplied in the modern villa house. Other plants will also be ready for some sort of supports—Oriental Poppies, Delphiniums, Lupins, &c., and the sooner they get their stakes the better. Tarred twine is by far the best material for tying, as it stands the wet and strain of the plants for the whole summer, and one shilling is well spent for a ball.

Cut over all plants that have ceased to flower, and in the case of Violas cut off all faded blooms, and so prolong the flowering season. If the weather has been dry and the surface of the soil has got hard, use the hoe to open and loosen it, and so let in moisture to the roots of the plants, and at the same time conserve the moisture below. Thinning of annuals sown in the open may be gone on with, but where directions for thin sowing have been attended to, very little of this should be necessary. Watch for slugs and caterpillars and all leaf-eating insects. The evening is the best time to find these enemies on their rounds, especially after a shower or a mild, damp day. Old carbide from motor or bicycle lamps is a good thing to spread round choice seedlings; slugs and snails will not cross it, but on no account should it be put close to any plant in case some of it was still fresh.

Scarlet runner beans may now be planted, and why should these not be grown for ornament as well as for use? Sown now a few inches deep and a few inches apart they will very soon cover poles or walls or arches, or unsightly wire-netting. The flowers are more ornamental than many wall plants about which there is far more trouble growing, and they have the advantage of having an edible fruit.

Now is the time to sow the Wallflower seed for next spring's bedding. There are many new shades, and the all seem to come true from seed. Among these new shades may be mentioned Ruby Gem, a beautiful deep purple, which when grown beside a pale yellow makes a splendid show; Primrose Dame, a soft primrose; and Ellen Willmott, an attractive but indescribable shade quite worth growing.

On dry, hot soils during the month liquid manure will be an advantage to Roses, Shrubs, Sweet Peas, &c., but the great thing to remember is not to give it too strong, and to give it after heavy watering with fresh water or after rain. Dahlias may be planted, and the sooner now the better. They require rich, deep soil, and they will also require constant watching for earwigs and other grubs. There are many different varieties of these, and all gardeners have their favourites. There is the old-fashioned single, seldom seen now; the Cactus, the Pom-pom, the Peony-flowered, and the large show. Wherever they are planted it must be remembered they require space and they require staking, and staking strongly.

Chrysanthemum alpinum.

This is a very pretty dwarf alpine, growing only three or four inches high. The flower heads are quite an inch across, with a yellow disk and pure white ray florets; the glossy dark green leaves are deeply toothed, the upper ones chiefly towards the apex. A typical plant of the alpine pastures, it is well figured in Thompson's "Alpine Plants of Europe."

B.

Hardy Azaleas.

CONSIDERING the unequalled part the Ghent or American Azaleas can play in enriching the landscape of the garden and woodland, it is strange how seldom they are found in such associations. Indeed, there are pleasure grounds of recognised good gardens where they find no place in beds or shrubberies, yet in those self-same gardens the mollis section will be made much use of in the greenhouse. To say the least, this exclusion of such a valuable bedding plant is remarkable, as there are no other hardy subjects so well fitted for imparting gorgeous beauty and telling effect to the outside garden in mid-spring as the Ghent Azaleas, besides which they have considerable beauty in autumn owing to the high colouring of the foliage.

Whether planted in beds or irregular groups, or interspersed on the outskirts of shrubberies, the rich colours are alike outstanding and impressive. Lavish, too, is the production of blossom, except, perhaps, when the buds get damaged by late frosts, which happening, luckily, is rare. Their fragrance is a further charming quality.

Planting can be done in a mixed arrangement or in separate colours. Either is equally beautiful, especially when the flowers are viewed in conjunction with the tender greenery of woodland trees or lawns. But if a suggestion for planting may be hazarded, perhaps the distinct colour method could be better followed in the garden of ample space, while for the small garden a few colours could be chosen for blending *en masse*. In neither case, however, should planting be overdone, proportion and general effect being kept in mind. The future development of the shrubs must be allowed for also, and not only immediate results remembered; otherwise there will be an unnecessarily early overlapping of plant upon plant, a condition that can only be cured by much pruning or the complete removal of some of the plants to fresh ground.

A word as regards soil and position may not be amiss. At one time peat was thought an absolute necessity for the well-doing of these plants, and while they would unquestionably thrive most perfectly in such a compost, it is now known that satisfactory results can be obtained without a particle of peat. Given ordinary garden soil, trenched with a mixture of leaf-soil and common sand incorporated, first class results can be depended upon. Should the substratum soil be on the moist side, so much the better, providing the drainage is thorough, for most of these American plants like a cool root basis. Where a clayey subsoil has to be dealt with . . . the preparatory work is more arduous.

A certain depth of the clay must be removed, the bottom layer made loose, some rough drainage material placed on it, and the bed made up as already mentioned. No manure need be added, this being more beneficial when applied as a mulch, particularly so if the soil be of a poor nature or where the plants are placed on sloping ground.

Of the two positions—full sun and semi-shade—the latter is better, because the flowering time is prolonged thereby, and the buds, in seasons of late spring frosts, get some protection

from surrounding trees, which trees also afford just the background for the many brilliant tones of the Azalea.

Though botanically known as *Rhododendrons*, gardeners will always cling to the name *Azaleas*; but this point and the enumerating of varieties it does not seem necessary to enter into here. They are so numerous, and any good nursery-men would gladly supply a list, while unnamed seedlings from a reliable source invariably give satisfactory results and harmonious colours. A more important thing is to emphasise their easy culture, usefulness and grandeur, and so bring about their greater usage wherever outdoor gardening is seriously practised. C. TURNER, Ken View Garden, Highgate, W., in *The Garden*.

Cultivation of the Lotus.

THE flour obtained from the root of the Lotus is in great favour with Orientals. The plant is a perennial aquatic with a large white fleshy cylindrical rhizome having a polished shining surface.

The plant is easy of cultivation and grows rapidly without requiring special conditions of climate or surroundings. It grows also fairly well in some parts of Italy. The writer considers the cultivation of this plant to be worthy of trials in marshy regions in Italy.

The flour is made by the Chinese, who value it both as a food and as a medicine.

It is pinkish white in colour, greasy to the touch, and crackles when pressed between the fingers. It is similar to arrowroot in appearance, and under the microscope resembles potato flour. It cannot be confused with the latter since the granules are somewhat smaller, more regular in shape, and the hilum is longer and not xcentric.

To extract the flour, the rhizomes are first dried, then macerated in cold water for three days and nights. It is then reduced to a paste by pounding in a mortar and again treated in cold water. After decantation the paste is exposed to the sun and dried, after which it becomes first-quality Lotus flour.—*Bull. of Ag. Intelligence and Plant Diseases*, January, 1916.

The above interesting note on the Lotus is an instance of the fact that plants at present grown only for ornament or botanical interest may yet be found to have very great economic value. *Nelumbium speciosum* has been grown in botanic gardens and some few private gardens for many years, and during summer forms an object of much beauty and interest. The large round leaves are borne on very long, comparatively slender stalks, the latter being attached to the centre of the leaf, which is slightly hollow on the upper surface. The flowers, somewhat resembling a Water Lily, are produced on similar stalks and rise well above the foliage; they are white or rose-colored, and may measure nine inches across.

Cultivation is fairly easy in a warm house in a tank where the water is heated. The rhizomes should be planted in rich loam mixed with about a third of old rotten cow manure and placed about six inches under the surface of the water.

I have no record of its attempted cultivation outside in Ireland, but there seems no reason why it should not be successful in Cork and the south-west.

EXPERIMENT.

Dublin Spring Flower Show.

THE Spring Flower Show held under the auspices of the Royal Horticultural Society of Ireland, in conjunction with the Royal Dublin Society's Spring Show at Ballsbridge, on the 26th and 27th April, although held under difficulties which prevented distant exhibitors from filling their entries, was particularly good as regards quality, notably so plants of florists' flowers, the chief prizes being awarded as follows, viz.:

Class 1.—Six Pot Roses—1st, and the Ardilaun Challenge Cup, Major Kelly, Montrose, Donnybrook (gardener, J. McDermott); 2nd, F. V. Westby, Roebuck Castle, Dundrum (gardener, F. Simmons).

Classes 2 to 8.—Alpines found but one exhibitor, viz., Class 5, nine pots or pans—1st, T. N. Atkinson, Dornden, Booterstown (gardener, J. Newman).

Class 9.—Six Azaleas—1st, Sir Stanley Cochrane, Bart., Woodbrook, Bray (gardener, G. Bower).

Class 10.—Six Azaleas, Mollis—1st, Sir Stanley Cochrane, Bart.

Class 11.—Six Pelargoniums—1st, Ernest Bewley, Danum, Rathgar (gardener, D. McIntosh).

Class 12.—Six Amaryllis—1st, F. V. Westby; 2nd, Ernest Bewley.

Class 13.—Six Carnations—1st, Ernest Bewley.

Class 15.—Three Deutzias—1st, F. V. Westby.

Class 16.—Six Deutzias—1st, Colonel Sir Frederick Shaw, Bart., Bushy Park, Terenure (gardener, W. Hall); 2nd, C. Wisdom Hely (gardener, J. Orr); 3rd, Sir Stanley Cochrane, Bart.

Class 17.—Cinerarias, six, other than stellata—1st, W. Seymour Bird, C.C., Churchtown House, Dundrum (gardener, W. Burne); 2nd, Wm. Robertson, Hermitage, Dundrum (gardener, W. Green); 3rd, T. N. Atkinson.

Class 18.—Cinerarias, six stellata—1st, Major Kelly; 2nd, Sir Stanley Cochrane.

Class 19.—Cinerarias, stellata, six (starred class)—1st, T. N. Atkinson; 2nd, C. Wisdom Hely.

Class 20.—Lily of the Valley, three pans—1st, F. V. Westby; 2nd, C. Wisdom Hely.

Class 21.—Mignonette, three pots—1st, Mrs. Meade-Coffey, Ardneen, Blackrock (gardener, R. Soden); 2nd, T. N. Atkinson.

Class 22.—Mignonette, three pots (starred class)—1st, Sir Frederick Shaw; 2nd, C. Wisdom Hely; 3rd, Wm. Robertson.

Class 23.—Freesias, six pots—1st, Wm. Robertson; 2nd, T. N. Atkinson; 3rd, Sir Frederick Shaw.

Class 24.—Arun Lilies, three pots—1st, Ernest Bewley; 2nd, Sir Frederick Shaw.

Class 25.—Spiraeas, white, six pots—1st, F. V. Westby.

Class 26.—Spiraeas, pink, six pots—1st, Sir Stanley Cochrane, Bart.; 2nd, Major Kelly; 3rd, F. V. Westby.

Class 27.—Calecarias, six—1st, Ernest Bewley (very fine); 2nd, Wm. Robertson; 3rd, T. N. Atkinson.

Class 28.—Primula obconica, six—1st, Ernest Bewley; 2nd, T. N. Atkinson; 3rd, Mrs. Courtney, Trimblestown, Booterstown (gardener, McGinley).

Class 29.—Schizanthus, six—1st, Wm. Robertson; 2nd, Major Kelly; 3rd, T. N. Atkinson.

Class 30.—Stocks, six—1st, Sir Stanley Cochrane, Bart.; 2nd, C. Wisdom Hely.

Class 31.—Tulips, single, six pots—1st, Wm. Robertson; 2nd, Major Kelly.

Class 32.—Tulips, double, six pots—1st, Major Kelly; 2nd, Reg. T. Harris, Saintbury, Killiney.

Class 33.—Hyacinths, twelve—1st, R. T. Harris; 2nd, T. N. Atkinson; 3rd, Mrs. Kelly.

Class 34.—Hyacinths, six—1st, R. T. Harris; 2nd, T. N. Atkinson.

Class 35.—Hyacinths, six, three in a pot—1st, R. T. Harris; 2nd, T. N. Atkinson; 3rd, Major Kelly.

Class 37.—Narcissus, six pots—1st, R. T. Harris.

Class 38.—Bulbs in Fibre, six bowls—1st, R. T. Harris.

Class 39.—Premier Class, Cut Daffodils. (Entrants not able to travel.)

Class 43.—Narcissus, six large trumpet varieties—1st, W. Seymour Bird; 2nd, R. T. Harris.

Class 44.—Narcissus, medium cupped, twelve vases—1st, R. T. Harris.

Class 46.—Narcissus, single, twelve vases—1st, Sir Stanley Cochrane, Bart.

Class 48.—Narcissus, double, twelve vases—1st, R. T. Harris.

Class 50.—Narcissus, portaz, six vases—1st, R. T. Harris.

Class 51.—Narcissus, bowl of—1st, Miss A. Bird; 2nd, Miss Eva Murphy; 3rd, Mrs. Crosskerry.

Class 52.—Carnations, basket of—1st, Mrs. Crosskerry.

Class 53.—Roses, twenty-four blooms—1st, Ernest Bewley; 2nd, Major Kelly.

Class 54.—Roses, twelve blooms—1st, Ernest Bewley.

Class 55.—Roses, twelve blooms—1st, Ernest Bewley.

Class 57.—Tulips, early Dutch, six vases—1st, W. Seymour Bird.

Class 58.—Tulips, Darwins, six vases—1st, Sir Stanley Cochrane, Bart.; 2nd, R. T. Harris.

Class 60.—Hardy Cut Flowers, twelve vases—1st, Sir Stanley Cochrane, Bart.

Class 63.—Arun Lilies, one bunch, fifteen blooms—1st, Miss Eva Murphy, Dunthony House, Dublin (gardener, J. O'Kelly); 2nd, Sir Frederick Shaw, Bart.

Class 64.—Pelargoniums, stand of twelve—1st, W. Robertson; 2nd, Ernest Bewley.

Class 65.—Pelargoniums, double, stand of twelve—1st, W. Robertson; 2nd, Ernest Bewley.

Class 66.—Decorated Dinner Table—1st, Miss Kathleen Kelly; 2nd, Mrs. Vincent Kelly; 3rd, Miss Eva Murphy.

FRUITS AND VEGETABLES.

Class 68.—Pears, baking—1st, Ernest Bewley; 2nd, Wm. Robertson.

Class 69.—Apples, dessert—1st, Sir Frederick Shaw, Bart.; 2nd, T. N. Atkinson; 3rd, Major Kelly.

Class 70.—Apples, baking—1st, Sir Frederick Shaw, Bart.; 2nd, Ernest Bewley; 3rd, R. T. Harris.

Class 71.—Strawberries, dish of—1st, C. Wisdom Hely; 2nd, Sir Stanley Cochrane, Bart.

Class 73.—French Beans, dish of—1st, C. Wisdom Hely; 2nd, Sir Stanley Cochrane, Bart.

Class 74.—Broccoli, four heads—1st, Ernest Bewley; 2nd, Major Kelly; 3rd, Sir Stanley Cochrane, Bart.

Class 75.—Sunkale, twelve heads—1st, Sir Frederick Shaw, Bart.; 2nd, no merit; 3rd, F. V. Westby.

Class 77.—Spring Cabbage, four heads—1st, R. T. Harris; 2nd, Mrs. Meade-Coffey; 3rd, Sir Frederick Shaw, Bart.

Class 78.—Lettuce, four heads—1st, Sir Stanley Cochrane, Bart.; 2nd, C. Wisdom Hely; 3rd, Wm. Robertson.

The Arboretum.

THE latter part of April and up to the middle of May have seen a wonderful improvement in the weather conditions, and nearly all trees and shrubs have been stimulated into growth and many into flower. The common ash, at the time of writing, stands gaunt and grey, though some of the oaks are not much better. Many of the more decorative flowering trees have been making a fine show, though a fortnight or three weeks later than usual. Among the more conspicuous at present are *Pyrus ringo* pyramidalatum, which is a mass of lovely rose-coloured flowers; *Prunus acida* and its varieties, *Pyrus floribunda*, and *Pyrus sargentii*, a very beautiful white-flowered species. The common Bird Cherry, *Prunus padus*, is a very pretty tree, bearing numerous racemes of white flowers, but is surpassed for decorative purposes by some of its varieties, notably *Watereri*, a form with very long inflorescences, and *Alberti*, which flowers very freely. *Magnolias* have been very fine this year, particularly *M. salicifolia*, a beautiful pure white-flowered species introduced to cultivation about ten years ago. *Ceanothus rigidus* has been a mass of bloom for three weeks or more, and seems to improve every year. The branches are literally clothed with flowers of a fine blue colour. This plant is not, as a rule, considered quite hardy in many places, yet a specimen put out in a shrubbery in the Botanic Gardens at Glasnevin has thriven, amazingly, and although quite tiny when planted is now about five feet high and as much through. It has some protection, certainly, from some other evergreens, such as *Pittosporum* and *Olearias*, growing on the east side, but is open to the south and west; the soil is rather light and dry. *Olearia stellulata macrocephala* is also in flower, and is usually earlier than the type, and is also looser in habit and has larger leaves. Many Heaths are still in flower, among which the hybrid *E. Veitchii* continues to be one of the best, some of the bushes quite smothered in white flowers. *Cotoneaster multiflora* is just opening its flowers as I write, and promises a good show, the naturally pendulous branches being well furnished with clusters of buds. A newer species, introduced from China, is also promising well—that is, *C. nitens*, a neat-habited species at present carrying numerous pink buds, which later on will expand into white flowers. The *Cotoneasters* are now very numerous, and nearly all are good shrubs or small trees, and should receive the close attention of gardeners.

One of the most conspicuous trees in the arboretum at present is *Acer platanoides* *Schwedleri*, a very handsome tree with bronzy-red leaves, which contrast very well with contiguous green-leaved species. Some people do not care for trees and shrubs with so-called "coloured" leaves, but to the writer's mind they add a distinct charm to a collection: the purple *Hazel* *Corylus maxima atropurpurea*, also the purple Plum, best known as *Prunus pissardi*, the purple Sloe *P. spinosa purpurea*, and the purple Beech all make striking and beautiful objects in the arboretum during summer, while some golden-leaved shrubs are equally capable of good effects. The main point in planting these coloured forms is to avoid too frequent repetition. The variegated or blotchy-leaved

forms once largely grown by nurserymen are less desirable and are not now so popular.

Many *Rhododendrons* are flowering now, and others which have passed out of flower are making wonderful growth since the milder weather arrived. Perhaps the most striking variety at present blooming is *R. Loder's White*, which is carrying fine trusses of large white flowers faintly flushed with pink, and an equally fine form of like origin is named "Patience," but is of a soft pink shade.

A delightful little species introduced some years ago from China is *R. nigro punctatum* (or is it *R. intricatum*?), with violet-purple flowers literally smothering the bush; scarcely more than fifteen inches high and about a foot through, this dainty little shrub is quite unique in the colour of its flowers and neat twiggy habit.

R. polylopis, also from China, has been very pretty lately, with its loose trusses of pale pink flowers spotted with yellow.

Among leguminous shrubs at present flowering profusely, *Genista glabrescens* is notably bright and pretty; so many beautiful shrubs of this order are now flowering that it is very difficult to particularise, but *G. glabrescens* at once attracts attention by reason of its dwarf neat habit and the abundance of its bright yellow flowers. *Cytisus albus roseus*, the origin of which I do not know, is rather pretty; similar in growth and habit to the common white Broom, the flowers are slightly rose-coloured on the outside of the upper petal. The flowers, however, are rather small, and I do not think it is likely to supersede a well-grown example of *Cytisus albus*, and is much inferior to the pink Broom grown in parts of Ireland as *Tombe's* variety.

The chief work in the arboretum at present is the pruning of such early-flowering shrubs as *Berberis Darwinii* and *Forsythias* which have passed out of flower; others will be attended to as necessary.

Beds and shrubberies incline to get weedy since the warmer weather arrived, and the diligent use of the hoe is useful now, not only in keeping down weeds, but in creating a fine surface tilth and thereby conserving the moisture in the soil, a very necessary precaution on light soils, considering that much hot and dry weather may yet have to be endured. Recently transplanted trees and shrubs, if showing any signs of suffering, should be mulched with some moisture-retaining material and further shortened back if the branches have suffered since the plants were moved.

Already a beginning has been made to propagate from outdoor shrubs. The young shoots of *Honeysuckles* and such like root readily if removed with a "heel" of old wood when three or four inches long; dibbled in in sandy soil under a handlight in a shady corner they soon strike.

B.

Ranunculus Millefoliatus.

A BRIGHT free-flowering species, native of South Europe and extending into Asia and North Africa. The flower heads are of a beautiful golden yellow, freely produced: the leaves divided into many segments. Easily increased by division, this is one of the brightest alpine of April and May.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener and Forester to Lord Carew, Castle Boro', Clonroche, Co. Wexford.

THE formal flower beds are usually situated close to the dwelling-house of the owner, be it castle or cottage, and this building will have to influence our judgment when selecting suitable colours to fill the beds. If the building be covered with green climbers one can use any colour, but if a white or grey building one has to be careful to get the best results. A red brick building is also a difficult background for good results of our summer flowering plants, most of which are gaudy enough to require toning down with nature's greenery. In filling vases be sure to fill them with as many plants as possible, leaving room on the surface for the watering which has to be done so frequently during the summer. The flower beds will be filled as quickly as possible and watered in the evenings for about ten days, until the plants show signs of growing again. Round beds are usually much better filled with one subject, with perhaps a single row of edging in a different and shorter plant. Small and quaintly cut beds in grass are also better filled with one subject. These can always be carpeted with some trailing plant, if the beds are so shaped that a full effect cannot be got.

Herbaceous plants of the autumn flowering type of Asters, Heleniums, &c., will require staking, and any tall plant as it reaches the height necessary. This work should never be neglected, as our whole year's work is destroyed with the first rough wind or heavy thunderstorm.

If the Wallflowers and Sweet Williams and other biennials were not sown at the end of May they must be sown at once. Wallflowers should be transplanted when the seedlings are three inches long, and the point pinched out of them as soon as they are re-established to ensure bushy plants and an even flowering next spring.

Mignonette should be sown in pots in a shady corner for flowering in the greenhouse all the winter.

Carnations of the perpetual type planted out in beds during May will, if the weather be dry, require several good soakings with water. Dahlias from spring cuttings must be planted at once. A little new loam chopped up with the manure usually dug into the prepared stations for the Dahlias gives good results, and, when growing freely, a little fertilizer once a fortnight, with copious waterings with liquid manure every dry day one can find time.

Sweet Peas are growing freely and attention to disbudding and watering must be given by those who wish the best results or to take them to flower shows; they must also be shaded for flower shows if the weather be bright. This is done by stretching scrim or floral shading, as it is sometimes called, over wires that are stretched over the tops of the lines of Sweet Peas.

Crocuses and all early flowering spring bulbs can, if necessary to remove them, be lifted and dried in the sun during the end of the month. In July, May flowering Tulips, of both Cottage and Darwin types, should be lifted and ripened in the sun. These Tulips increase and multiply every year, and are invaluable for cut flowers.

Cuttings of all the free growing spring flowering subjects on the rock can be taken with advantage

this month: other subjects which do not grow at all well. I find it wise to take off small portions of the plant with a root, if possible, during June, and grow in pots all the winter to make up any gaps which may appear next spring after the winter's frost and rains.

Carnations of the border type must be staked, disbudded, watered, and a pinch of Bentley's carnation manure given to each plant, with the hoe to loosen the soil after this work is done. Annuals sown out on borders must be severely thinned, and a watch kept for slugs.

All the Aubrietias, early flowering prostrate Phloxes, the free growing Saxifrages and many other May flowering subjects on the rock garden will have to be cut over during June to remove flowers, and in most cases it is wise to shorten back the plants severely at this time. As this occurs in a season which is sometimes hot and harsh, I find it necessary to sprinkle these plants in the evenings to encourage a new growth. If a hose can be brought to bear on it and a soaking given it would be better.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

STRAWBERRIES.—In the event of dry weather, these will be greatly benefited by copious waterings with liquid manure during the time when the fruit is swelling. This must, however, be discontinued immediately colouring commences. The nets should be placed in position in good time, as birds often attack the fruit before it begins to colour. Plants in pots that have been forced may be planted in the open after being well hardened off. The ball of soil should be reduced and allowed to soak in a tub of water before planting. These plants will provide a few good fruits again in September, and will make splendid plants by next season.

ORCHARD TREES.—The fruit on these should be thinned in good time if the crop is heavy, removing all malformed and injured fruits first. Apples, such as Beauty of Bath, nearly always carry many of these useless specimens, which, if they are allowed to ripen, use up the energy of the tree without giving any return for it. Do not thin plums until they have finished stoning, and even then leave plenty to allow of a final thinning when a little more than half grown; at this stage they will be very useful for green plum jam. Thinning of the fruit is especially necessary in the case of young and newly-planted trees, which may be stunted in growth for years if allowed to fruit too freely the first season after planting. A few specimens only should be left on each to ascertain if the trees are true to name, and perhaps to provide a dish for the fruit-room collection. Hoing should be persevered with whenever the weather is dry, both to keep down weeds and to aerate the soil. Hoing will also obviate the bad effects of drought to a great extent.

Trees planted this year should be well watered during prolonged dry weather, afterwards applying a mulch of strawy manure or cut grass for as far out as the roots extend.

Damage is often caused by large birds alighting on newly re-grafted trees. A good way of providing against this is to drive a stout stake to them, about two feet higher than the scions, with a small piece nailed on the top in the shape of a capital T. Before I took this precaution I had several grafts ruined by crows resting on

them. Keep a sharp look out in the orchard for aphids, as if it is not attacked in the early stages it is both difficult and expensive to eradicate later, when the trees have become badly infested.

Black scab is another terrible pest which should be dealt with this month. Nothing detracts from the value and appearance of apples and pears like an attack of this fungus. There are several preparations on the market containing sulphate of copper put up in handy form which are both cheap and effective.

WALL FRUIT TREES. These require unremitting attention during this month. See that they are well supplied with moisture at the roots. It should be remembered that the wall not only keeps off much of the rainfall, but also absorbs moisture from the border during dry weather. Therefore these trees will often require watering even during showery weather, especially cherries, which will drop badly if allowed to become too dry. Liquid manure from the farmyard, if available, is a great help to trees carrying good crops, but it should not be applied to those without fruit unless they are making weak growth, in which case it will help to build up a strong tree to fruit another year.

The leading shoots on plums and pears should be secured with a tie in the correct position. All other shoots not required to form branches should be stopped at the fifth or sixth leaf. Pinch the strong growths first and leave the weaker shoots for a week or two, thus allowing them to benefit by the diversion of sap from the strong growths.

Enough growths on peaches and nectarines should be carefully tied in to provide fruiting wood for next season, and all shoots not required either pinched close in or removed altogether. Do not crowd the growths, as well-ripened wood is a first essential to fruitfulness. Morello cherries should be treated in the same way as the foregoing, except that more young growths can be left on them, as they do not require so much space between as peaches. Sweet cherries should have the leading shoots secured and all side growths pinched back to form spurs. Early varieties of these should be netted in good time, as birds are very partial to these fruits. Before netting attend to the stopping and tying of the shoots.

All wall fruit trees are greatly benefited by frequent syringing with clear soft water in the evening, which keeps the foliage healthy and improves the size and quality of the fruit.

BUSH FRUITS, &c.—The side shoots on red and white currants and gooseberries can be stopped at the fourth leaf, but let the leading shoot on each branch grow on. When picking green gooseberries the bushes should be gone over systematically, removing a few fruits from each spur or branch, and leaving an even crop all over the bush to ripen. If exhibition fruits are required, extra attention must be given them in thinning more vigorously and applying liquid manure water and mulching up till the time colouring commences.

Give the young shoots of raspberries plenty of room to develop into strong canes for next year's fruiting, and keep the plantations free from weeds.

The young growths of loganberries should be supported as soon as they require it. They are easily damaged by wind and heavy rains, and next year's crop depends on their proper development.

The Vegetable Garden.

By J. B. Pow, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

BRASSICAS. During the month of June the main crop of this family of vegetables should be planted into their permanent quarters. Sprouts and broccoli succeed best where the ground is firm and not recently dug or manured. In planting, a distance of not less than two feet should be allowed between the rows, and an equal distance from plant to plant. Great difficulty is often experienced with winter and spring broccoli in growing a satisfactory crop, the plants dying off, and the others refusing to form good heads. If planted on firm soil, and not too much manure has been used, the leaves will be less sappy, the stem more woody, which will render the plants more durable to withstand the winter's frost and damp. Autumn cauliflowers may be planted on rich soil, allowing two feet between the plants. Plant cabbage for summer and autumn use; the small growing kinds should be planted eighteen inches in each direction, the large growing varieties may be planted two feet between the rows and eighteen inches from plant to plant. Sow Rosette Coleworths. Autumn planted cabbage will now be over. The ground should be cleared and prepared for another crop.

PARSLEY.—Make a sowing of parsley for autumn and winter use.

CELERY.—At the earliest opportunity celery should be planted out into the trenches. Should the weather be dry, give the trenches a good watering an hour before planting.

ONIONS.—Keep the onion bed free from weeds. Give a dressing of sulphate of ammonia, half an ounce per square yard, at intervals during showery weather.

PEAS.—Continue sowing peas for late use. Peas may be sown till the last week in June and give good results. Perfection, Latest Giant and Gladstone are good varieties for late sowing. Early Giant, Gradus, or any other early variety may be sown for late use.

BEANS. Sow dwarf and runner beans for succession. Gather the pods when large enough. When the pods are removed the plants will remain fruitful for a longer period.

TURKISH.—Sow on cool soil another sowing of turnips. By the middle of the month a sowing of Swede may be made for winter use.

LEeks.—Plant out leeks for early use. A distance of one foot and a half should be allowed between the rows and nine inches between the plants. Leeks may also be grown in trenches similar to celery.

SALADS.—Make a sowing of lettuce every fortnight. Mustard and cress may be sown outside in any convenient corner. Radishes should be sown in a cool shaded situation. If small onions are required, a sowing should be made every three weeks. Chicory and endive may now be sown.

GENERAL REMARKS.—Thinning and transplanting will take up much time during the next few weeks. Earth up late potatoes. Asparagus should not be cut after the middle of the month, remove all weeds from the bed, and apply a dressing of artificial manure. Protect young vegetation from slugs during showery weather, with the free use of soot or lime.

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Notes on Trees and Shrubs at Aldenham.

By THE HON. V. GIBBS.

It may interest the readers of IRISH GARDENING to hear about a few of the flowering trees which are making the bravest show, in early June, in the Aldenham Garden in this sad year of grace 1916, when

"Nations against
nations rise,
And ardent warriors
meet with hateful
eyes."

First, I would tell of *Cratægo-mespilus* Jules d'Asnières, which for the last ten days has been, and still is, so covered with vivid white blossom that no foliage can be seen. It is, I think, more showy than any pure *Cratægus*, and certainly holds its flower longer.

It is a more beautiful tree than that other graft hybrid between thorn and medlar, *Cratægo-mespilus Dardari*, which, as many readers will know, sprang originally from the same tree in a French nursery garden. Graft hybrids are so rare a thing in the case of trees that, besides these two, I know of no other except *Laburnum Adami*, and when this last reverts to both its parents and shows, as can be seen in this garden, not only the pink hybrid

blooms, but also the yellow flowers of one parent and the purple of the other, the interest is increased. Though this phenomenon is not

unusual in the case of the *Laburnum*, yet I believe I am right in saying that my plant of *C.-m. Dardari* is the only one which has hitherto been known to revert to both parents. The plant at Kew has some branches of pure medlar, but mine has also a branch of pure thorn, and when all three—namely, the hybrid, the thorn, and the medlar—are in flower together the effect is curious, and the botanical interest considerable.

A fine specimen of the *Laburnum*, which nurserymen call *L. Alschingeri*, is now loaded with its long yellow panicles. The plant which rightly bears that name is a quite distinct species, which has little or no

ornamental value: but there has always been a doubt whether this showy tree was merely an exceptionally fine form of *L. alpinum* or a hybrid between that and *L. vulgare*. At the request of Dr.



CRATÆGO-MESPIUS ASNIERIÆ AT ALDENHAM
HOUSE, EELSTREE.

Augustine Henry I raised, a few years ago, several hundred seedlings from this tree, and the doubt has now been resolved by all these (which vary from one another markedly in appearance) showing vulgar blood and the typical hairs when examined. I gave a seedling from this tree, which I raised some twelve or fifteen years ago, to the well-known American, Professor Sargent, and he wrote to me last year to tell me that it had flowered at the Arnold Arboretum, near Boston, and had very small yellow-lemon flowers, and was so distinct and attractive as to deserve a varietal name.

Perhaps as remarkable and conspicuous a tree as any now flowering is *Cornus brachypoda*, or, rather, *C. controversa*, as I believe we ought now to call it. This is usually seen as a straggling bush, but I have pruned off the lower branches of the plant which I am endeavouring to describe, and have obtained a clean, straight stem of about five feet high, with a head of broad, flat branches loaded with white elder-like, upright-standing corymbs: the effect is wholly pleasing, and no one comes here without their attention being immediately attracted to it.

Of plants in flower which are more of the nature of shrubs than trees, *Ceanothus dentatus*, with its small round bright blue flowers: the old fashioned *Buddleia globosa*, with its sweet-scented orange balls: and *Viburnum macrocephalum*, with its very fine white snowball flowers, which have almost the effect of a *Hydrangea*, are perhaps the most brilliant. Among the *Viburnums* which attain the dimension of a small tree, the true *Viburnum Sieboldii* has flowered very well, though it was over by the end of May. This is a deciduous plant, and quite distinct from the evergreen shrub *V. japonicum* which is usually sold by English nurserymen under the name of *V. Sieboldii*.

The *Syringas*, or *Lilacs*, are practically over, but some of Wilson's introductions, which have got old enough to flower freely this May, are quite worth growing. The best, in my judgment, is *S. reflexa*, with real rose-red, not purple-red, flowers. *S. Wilsonii* (flowers white) is already ten to twelve feet high. *S. Sweginzowii*, though it was honoured with an award of merit when I exhibited last year, is not, to my thinking, as good either as the old Persian *Lilac* or as the much less common *S. Juliana*, which was quite charming when in pale lilac flower a fortnight ago.

S. pinnata is more to be valued for its fine, deeply-cut leaves, so unlike a lilac, than for its white flowers which have no special merit. *S. Komarovii* is also a good, tall, free-growing

shrub, with brick red in bud, and when fully expanded rosy red and white flowers, quite attractive and as good as, if not better than, the bloom of *S. reflexa*.

S. japonica is well set with flower buds which have not yet opened, and its lateness when all its congeners have ceased to charm is an advantage, against which may be set the unpleasant privet-like smell of its creamy-white flowers. It is not, however, one of the most thriving plants in Europe, and to see it in perfection one must go, if not to its native habitat at any rate, to the United States of America.

Besides the above-mentioned Chinese *Lilacs* I have also *S. Sargentiana*, which is in foliage of the *S. Emodi* type, but has not yet borne flowers with me, so I cannot describe them, but, judging from its name, Professor Sargent is not likely to have stood godfather unless it were something out of the common.

Among creeping or climbing plants now in flower, far the most gorgeous is *Lonicera ciliosa*, with deep orange clusters; a quite hardy plant which has been long ago introduced, and which readily flourishes in any decent soil and climate, but which is far too seldom seen.

If this be just now our showiest climbing plant, I think the most interesting is *Aristolochia heterophylla*. Its foliage is much smaller and more refined than the better known *A. siphon*, and its chocolate-white flowers even more closely resemble the "Dutchman's Pipe," which has furnished a popular name for the other.

If the above account should arouse in any reader's breast a wish to see this garden, I hope he will present himself when next in the neighbourhood, as the place is always open to anyone interested in horticulture.

Aldenham Park,

3rd June, 1916.

Pyrus sinaica.

This little known species is very ornamental in spring when covered with its white flowers. The young leaves, too, are silvery in appearance, though later on they become green. Apparently never of large size, *P. sinaica* is very suitable for planting as a lawn specimen, growing rather slowly and never occupying a great deal of space. It is said to be allied to *P. amygdaliformis*, which also has grey leaves and white flowers in spring, and which is also well worth growing by all interested in ornamental trees.

The Alpine Garden.

MAY and June are months of great delight for the alpine gardener, for it is then that the result of the work done in the past year is really seen.

Newly constructed rockwork, freshly planted, is now a mass of bloom and quite "at home" with its surroundings, and many new effects may be noted.

Particularly happy is a planting of *Primula Veitchii* at the foot of a small mound covered with *Ajuga variegata*; and in the bog *Primula siberica*, flowering with *Dodecatheon Jeffreyi* and *Primula pulverulenta* pink, is quite lovely.

Also noticed in the bog are *Pinguicula grandiflora* in quantity, *Trollius globosa*, and other forms; *Saxifraga crosa*, *S. Hausmanni*, with most effective yellow flowers; *Lithospermum prostratum* Heavenly Blue, *Phlox Douglasii*, with delightful mauve flowers and prostrate habit; *Ranunculus amplexicaulis* R. bilobus, and several interesting groups of *Primula* Lissadell Hybrids in variety.

The red mossy Saxes were a pure delight this year, *S. decipiens* Red Admiral being rated as the best "stayer," *Phlox J. F. Wilson*, flowering beside a patch of *Arenaria purpurea*, is very effective, as is a fine stream of *Viola gracilis* tumbling down through purple *Aubrietias* and mauve *Phloxes*.

The enervated Saxes are quite beautiful, *S. lingulata* Alberti dividing the honours with *S. Cochlearis* for the most effective, and a very good collected form of *S. Cotyledon*, rather like *Icelandica*, but evidently not so hard to grow, coming in a good third.

In the limestone moraine *Wahlenbergia serpyllifolia* and *W. s. major* are a mass of bloom, and *W. pumilio* shows great promise of flower. *Globularia incanescens*, *Dianthus Freynii*, *Erodium Reichardii* syn. *Chamaedryoides*, and *Armeria caespitosa* are also in flower.

Cyananthus incanus, *C. lobatus*, and *C. inflatus*, wintered in the alpine house, have been planted out on a shady slope in peat and sand.

Propagation, which began with the early *Saxifrages*, is now being started "in earnest," the sand and sun frame method being used for some things, but the majority of our cuttings are rooted under "cloches" in sand and leaf-mould in a shady corner facing north. I hope to go more fully into this most important work of propagation in next month's notes.

M. E.

Erodiums.

COMMONLY called "Heron's Bill," the *Erodiums* are somewhat similar to the *Geraniums*, but differ in having only five perfect stamens instead of ten as in *Geranium*; as a rule, too, the leaves are more finely divided, and a short acquaintance with the two genera will suffice to teach one to distinguish them.

No plants are more suitable for the rock garden, and practically all are hardy and easy to grow in well drained soil in a sunny position. For forming groups or planting between stones many of the species are excellent, while the stronger growers are suitable for the front of the herbaceous border or for edgings. The colours vary through pink, white, yellow, violet, and intermediate shades, and all are pretty and useful.

Propagation is fairly easy in most cases by means of seeds or cuttings. Seeds are not produced freely in all cases, and it will be found on examination that some plants of one species may have male flowers only and others only female. In such cases hand pollinating is an aid in the production of seeds. Seeds should be sown in light, sandy soil, and placed in a close frame where they will soon germinate, and may be pricked out when large enough.

Cuttings removed with a short piece of the woody portion at the base root well when dibbled into sandy soil under a handlight or in a close cold frame. Owing to the very short growth of some species, it is occasionally difficult to detach shoots suitable for cuttings, in which case some sandy soil mounded up round the base of the plant might induce the formation of roots, when the shoots could be detached with a sharp knife.

The following are some of the best species and varieties in general cultivation:—

E. Chamaedryoides. This is a delightful little plant, perhaps the tenderest of all. It flourishes in gritty soil facing south or west, and protected from the north and east by stones. It only grows some four or six inches high, bearing small round green leaves, surmounted by white flowers with pink veins. *E. chrysanthum* is a lovely plant with grey-green, finely divided leaves and pale yellow flowers. Of this there is a pretty white-flowered variety.

E. guttatum is an uncommon species, with silvery leaves and white flowers with violet veins. It is often confused with *E. macranthemum*, which has light violet flowers with darker blotches. Both are extremely beautiful and love deep sandy soil in a sunny position.

E. pelargoniflorum is a fine hardy free-flowering species, bearing quantities of white flowers with violet or purple blotches; the leaves are somewhat oval or heart-shaped, and the stem reaches a height of six to nine inches.

E. petraeum is a pretty low-growing species, with finely divided leaves and flowers of a light purple or violet difficult to describe.

E. romanum, with reddish-purple flowers and deeply-cut leaves, is a biennial species which sows itself, and generally chooses the hardest ground to grow in, very often flourishing best by the side of a hard path.

E. sibthorpianum is a strong grower, but a very lovely plant withal. The finely divided leaves are silvery grey and the flowers pale pink; it makes a pretty mass even when not in flower.

E. superacanthum is one of the gems of the genus with fine silvery foliage and pretty flowers.

E. trichomanefolium has beautiful pink flowers over charming fern-like grey-green leaves; this is one of the best, and makes a fine group in a sunny position.

Of the stronger growers suitable for large rock gardens or herbaceous borders there are *E. carvifolium*, with umbels of red flowers and deeply, cut green leaves; *E. dancoides*, with reddish-carmine flowers and leaves somewhat like those of the last species; *E. hymenodes*, with pink flowers, leaves lobed and toothed, and the stems softly hairy. This species does not survive every winter, and should have some protection; a few stock plants may also be kept in a frame in case of emergency.

E. Manescavi is another strong grower, with rather carrot-like leaves and purplish red flowers; a useful border plant and good for the bolder parts of the rock garden.

J. W. B.

Rainfall.

THE remarkable rainfall which commenced before midnight on Thursday, 4th May, and continued without intermission for over eighty consecutive hours until the early hours of Monday, 8th May, amounted in the Dublin district to 3.58 inches.

The accompanying illustration shows a curious effect it had on May-flowering Tulips. The Darwin and other varieties of this section were just opening and

The rain lodged in the partly opened flowers, causing these to bend over, and the weight of water adhering to them so long prevented them from straightening themselves up again while the rain lasted. When clear weather supervened the oldest flowers had become permanently fixed in this inverted position, and remained so for a fortnight whilst in flower. The younger flowers were able partly to right themselves, and the youngest assumed the normal position, so that in any one clump flowers in all positions were to be found. The photograph was taken on the 18th May, ten days after the rain had ceased. The total rainfall for the month of May was 4.99 inches, and the rainfall from 1st January to 31st May amounts to 15.86 inches,

6.52 inches more than in the corresponding five months of 1915.

F. W. MOORE.



TULIP FLOWERS BENT DOWN BY RAIN.

Campanula glomerata dahurica.

A JUNE-FLOWERING perennial, this is a most satisfactory plant, doing well every year. Attaining about eighteen inches in height when in flower, it is most useful for the front of a border. The flowers, which are borne in close clusters at the ends of the stems, are of large size and of a fine rich violet-purple, most effective and striking. Easily increased by division in autumn.

BELLFLOWER.

Notes.

Double Rockets

HESPERIS MATRONALIS FL. PL.

For many years the Double Rockets have been known and loved in some gardens, yet in far too many they are quite unknown. Perhaps, as every soil is not suitable for their growth and the requirements of the plants not always understood, people are inclined to consider them difficult. A stiff cool soil is the best, producing vigorous plants with flower stems two to three feet high, and if the natural soil of a garden is light and dry, means must be adopted to remedy this if Rockets are to succeed. The application of plenty of thoroughly rotted manure and a mulch of some moisture-retaining material will help greatly, and result in the production of quite good specimens. The double white is

perhaps most popular, and is a really beautiful plant when well furnished with spikes of its charmingly scented flowers. The double purple, which is really reddish-purple, is also very striking, and makes a charming group. As the flowers fade and towards late summer many new shoots are formed at the base, which may be taken off as cuttings. It is best to propagate frequently and divide the clumps at least every two years to maintain them in health and vigour.

GARDENER.

Veronica hulkeana.

This beautiful New Zealand shrub has flowered very profusely this year, and is certainly one of the most pleasing sights in the garden when covered with its charming pale lilac flowers. Of rather loose habit, it is inclined to become

broken down when in flower unless given some slight support. Perhaps not quite hardy in low-lying positions, it is better in such cases to plant close to a wall or hedge in a sunny position, and protect lightly with a few branches in winter. Propagation is easily effected by means of cuttings taken about four or five inches long and dibbled in in sandy soil under a cap-glass or in a cold frame. It is well always to have a few young plants in hand. Veronica lavaudiana is a plant of very different habit, dwarf with rather prostrate branches and bearing corymbs of pink flowers; a very beautiful plant for the rockery, flourishing in more shade than suits

V. hulkeana.

V. Fairfieldii is a supposed hybrid of the above two species, and is in appearance certainly intermediate, being dwarfer than the first named and taller than V. lavaudiana, bearing short spikes of flowers rather similar to those of V. hulkeana.

B.



PYRUS SINAICA IN THE BOTANIC GARDENS, GLASNEVIN.

Sutherlandia frutescens.

ALTHOUGH not to be recommended as generally hardy, this interesting leguminous

shrub from South Africa frequently does very well in mild districts in Ireland, and can often be grown successfully in warm sunny corners in less favourably situated gardens; it is also quite a good plant for a green house from which frost can be excluded. In general appearance it resembles Ceanothus puniceus, the "Lobster's Claws," of New Zealand, but it is of harder growth, forming shorter, stiffer branches, furnished with impari-pinnate leaves, and bearing in early summer racemes of bright red pea-shaped flowers. Often used as a "dot" plant in summer bedding, it is well worth trying in a sunny angle of the dwellinghouse or other building. The pods are curiously papery and inflated, whence it is sometimes called the Cape Bladder Senna.

The Rose Garden in July.

Nor for many years has June, "the month of Roses," been so disappointing to the rose grower. The first three weeks have not given many blooms, and those few have not been of a decent quality. But no other result could be expected from the plants, which suffered very much from a state of things that was not at all genial. Cold hail showers, strong enough to break the foliage, and even tear off some of the soft young shoots, were frequent, and the nights had not the balmy air that would encourage the growth after the short heats of the day. The blooms of the stronger climbing varieties, retarded though they have been in some instances, at least a fortnight, escaped more lightly, and are now making a very good appearance, and will make the garden beautiful until the more shapely dwarfs are out in sufficient numbers to light up the ground. Goldfinch, Francois Foucard, Jersey Beauty, Psyche, Starlight and Joseph Billiard are now in full bloom, and in a few days' time Ferdinand Roussel, Snowstorm, Flora and Debutante will also open out.

It is rather unusual to find those climbing varieties receiving proper attention at this time. If plenty of bloom is on the plant the policy of non-interference may be carried to the extreme to the detriment of further seasons. Late summer pruning should be regularly carried out, especially with those roses that do not bloom continuously during the season. It would be unwise to prune much of the wood of those of short, sturdy growth that keep on flowering after the first bloom. Judicious thinning will serve the purpose better. With regard to the Crimson Ramblers, Lady Gay and others of the climbing and multiflora types, after the flowering period has passed, the flowering shoots should be cut away and room made for the young growing shoots to mature and ripen properly for the next season's bloom. Many of the various pillar roses will be growing rather thickly now, and any weak shoots incapable of bearing may be removed. Margaret Dickson, Ulrich Brunner, Gruss an Teplitz, and even Mrs. John Laing, once the main crop of bloom is off, may be also cut hard back to encourage further growth.

The rose maggot has taken full toll during the last few weeks, and the larger, if not more destructive, caterpillar is now beginning his ravages. Nothing but hand picking is of any avail, and a sharp eye will quickly make short work before the depredations are carried on too far. With the second growth on some of the favoured plants mildew will soon make its appearance, and it should, if possible, be checked at the outset. The best of all well-known remedies is sulphide of potassium, used

in conjunction with rain-water, to be syringed on during the evening. If warm water is employed as a wash, a couple of days later it will be a decided benefit. A homely remedy, and one that succeeds often where others fail, is the application of soot after a shower or when the plants have been well drenched by the syringe. Let it remain on for three or four days before being washed off, and though it may, and certainly it does, look ugly, it will be most efficacious. This washing in of the soot to the roots will benefit the rose otherwise.

The hoe should be regularly kept going about the roots to keep the soil fine and porous, especially after rain or watering. The watering can may be withheld in a measure if this is carried out. In established plants a liquid manure may be applied, but only after a previous watering.

Those who wish to get up a large stock of roses will find the present month the best for budding. Apart from the results it is a most fascinating part of rose growing, and the initial difficulties are easily surmounted. Like all knowledge of the eminently practical kind, seeing the work done is worth pages of description and advice, but even a hint or so will be helpful where ocular demonstration is missing. For all purposes the brier cutting or seedling is the best stock to work on. If the cuttings have been taken the previous year they will now be making good root, and the bark suitable for incision. In the case of briars for standard roses a second year's growth will be all the more advantageous.

None but the healthiest roses should be used for propagation, as weaklings are inclined to deteriorate. If the bark can be readily separated from the wood, the brier stock will be found suitable, and, on the other hand, the bud should be well plumped up, but not opening into growth. The shoot from which the bud is to be taken should be cut off. With a sharp knife remove the bud, and take with it about half an inch of the bark above and below. If a little wood is adhering to the inside of the cut, gently remove it without injuring the germ. When this is done the base of the bud will be smooth and even, but if a small cavity is left the bud is useless, and may be discarded and another one procured. For dwarf roses the buds should be fixed to the stock a couple of inches below the soil level. Clear the soil away and make an upright incision long enough to enclose the bark of the bud. A cross cut can be made at one end for lifting the bark. Care should be taken that the wood is not injured by the knife. Insert the bud in the opening and press down the bark all round, and secure it firmly by bast or raffia or strong woollen thread. A too tight a tie will often

bruise the bud, and the operation will fail. During dry weather the plant should be regularly watered to promote a good flow of sap. After a month or so, if the bud has taken hold, the tie may be slightly loosened to allow for the natural swelling, but if loosened more than is necessary the bark may become separated at the cut, with the natural result in the decay of the bud. It is best not to interfere with the growth of the stock until the bud is making progress, then they can be cut back, leaving for the present one brier eye or growing shoot. This afterwards may be removed without checking the flow of the sap.

J. A. F. G.

Beekeeping.

It is to be hoped that July will afford a month of better weather for bees than its predecessors, which have proved very disappointing. The honey that was stored in supers in May was nearly all cleared out during the three weeks of cold, wet weather which followed, till the next honey flow set in on 13th June, but it only lasted four days when the temperature again dropped. The sycamore has been the principal source of support this season, as it yields nectar at a lower temperature than either fruit blossom or hawthorn. There is very little fruit blossom honey this season, and, with the exception of two days, the temperature was too low during the time the hawthorn was in bloom. Rape, and in some places charlock, is the principal source from which bees have been obtaining a scanty subsistence of late, while in less favoured districts the feeders have been in use, especially with swarms, for the past four weeks. The majority of stocks in the best districts are abnormally strong, having two crates of sections well filled with bees and drawn-out comb—some about half-filled—and the brood frames so well covered from corner to corner with capped brood that they are in the best possible condition for storing a record crop in record time. Pastures are very bare at present, and cattle as well as bees are passing through a period of scarcity. White clover promises to be plentiful, but it will be about ten days later than usual. If the British weather chart should prove as correct for the future as in the past of this season—June, "very warm and close;" and July, "a warm, rather dry month"—honey will be stored rapidly, if precautions as to ventilation, shading, removing queen cells, and giving room in crates or supers as required, so as to reduce the risk of swarming to a minimum.

The extractor should be in readiness for dealing with frames from the extracting supers as they become fit, and immediately returned to the bees. Remove sections immediately they are finished, so as to avoid travel-stain, which reduces their market value. They should then be scraped free from wax or propolis, graded, wax-papered, and if they have to be kept for some time before marketing they should be carefully packed in paper-lined boxes, and kept in a warm, dry place. If required for home use, the best way to keep comb-honey in perfect condition over the winter without the risk of its granulating—or, as country describe it, "getting sugary"—is to pack it in square biscuit tins which hold sixteen sections, and keep it in a warm press near a fire-place.

No hard and fast rule can be laid down as to dates on which it is safe to continue or stop adding crates or supers with a fair prospect of their being filled and sealed. In districts where the blackberry and lime close the season, care should be taken to remove all well-finished sections in time, and returning the unfinished sections so that the bees may be well crowded on them with a view to getting them filled and capped. In late districts with the heather and wild scabious—better known here as blue button—to fall back on next month, crates or supers should be given as required. The bee-keeper who has studied the sources of supply in his district invariably aims at getting the greatest number of well-filled and capped sections, without having a lot of quarter or half-filled that are unsaleable; it is only those that weigh 16 ozs. or over, and are capped in the corners, that command top price.

Nuclei formed last month should be examined to see how they stand for stores, and whether the queens have mated. If there should be a shortage of stores, the necessary help can invariably be obtained by swapping an empty comb from a nucleus with a comb containing sealed honey from the back of the stock hive. This is a much safer method of feeding a nucleus than giving syrup, which is liable to create excitement, and attract robbers from the strong hives. Any old queen showing signs of failing in vigour should be replaced by a young, mated queen from a nucleus. The nucleus may then be re-queened on the evening of the third day after removing the laying queen, either by giving a frame with a ripe queen cell, which should have a cell protector, or by removing the combs containing eggs or brood at the time of removing the laying queen, the bees will then accept a virgin queen on the evening of the third day, and she may be introduced direct.

PETER BROCK.

Fairview, Enniskillen.

Cydonia japonica.

"ANEMONEFIELD SCARLET."

ONE of the most useful shrubs introduced to our gardens is undoubtedly *Cydonia japonica*, perhaps more generally known as *Pyrus japonica*, native of China and Japan. It was sent to Kew towards the end of the seventeenth century, and has now found its way to almost every cottage garden. It has much to recommend it. Hardy and accommodating, it can be grown in most positions and aspects, but flowers best when trained against a wall, preferably one where it can get some sun, although this is not necessary, as there is no more useful plant for covering walls facing north or east or for covering walls in enclosed yards. Well established old plants commence to flower soon after Christmas, and continue flowering until May, the best display being in March and April. There are numerous varieties in every shade from pure white to pale yellow, salmon, pink, and scarlet. Of these, the varieties *Princeps*, *atro sanguinea*, *nivalis*, *Simonii*, *cardinalis*, and *extus coccineus* will be found good. But why should the cultivator limit himself to named varieties? There is no more fascinating phase of gardening than raising new varieties from seed. Amateurs are apt to think that they have small chance of success or of getting anything to compare in merit with those produced by the trade. This is far from being the case. Many of our finest garden strains in almost all classes of plants, from Orchids to Wallflowers, have been raised by amateurs. *Cydonia japonica* can be raised from seed, and the efforts of the experimenter will be well repaid for the care and patience neces-

sary to get good results. The best display and the most charming set of varieties of *Cydonia japonica* I have ever seen was at Hamwood, Dunboyne, almost all of the plants in the front garden being seedlings raised by that good gardener, the late Charles R. Hamilton, the then proprietor. The variety figured is an excellent one in every respect. The flowers are large, well shaped, scarlet in colour, and the plant is free-flowering. It is a seedling from *Cydonia japonica* *Simonii* raised by Mr. E. McIlwaine, of Carrmonee, Belfast, who has christened it "Anemonefield Scarlet." He writes about it: "I am always hunting for seed, and so I was attracted to *Pyrus Simonii* as being a really good thing, but gives very few seeds, at least with me, and from this plant I raised this variety, which is really a very striking plant when in flower."

F. W. M.



CYDONIA "ANEMONEFIELD SCARLET."

Delphinium venustum.

FLOWERING in early June, this is one of the most striking of the many varieties I have seen. The flowers, which are of good size, are of a fine deep gentian blue with no trace of red or

purple which so often mars the darker blue Delphiniums. The "centre" is brown and not too conspicuous, so that at a few feet away one gets the full value of the deep blue colour. This will be a very telling variety for grouping in the border when sufficient stock is available.

Honeysuckle.

THERE is the Honeysuckle, whose fragrance is as the Circæan cup that cheated the senses; it makes the air heavy; it sets the brain on fire; it fills the mind with images which are sweet to look upon, and yet all blurred, confused and shadowy; it is as a mist or cloud which hangs about the imagination.

ANON., *The Following of the Flowers*.

The Arboretum.

RARELY has early June proved so inclement as this year. For the first week at least showers of hail were frequent, and a cold north wind blew continually, conditions surely the reverse of suitable for healthy growth. Nevertheless, most trees and shrubs have made wonderful progress, though the tender leaves of some trees, particularly poplars and maples, suffered severely, and one young Chinese poplar was nearly stripped, what leaves remained being battered and torn out of all recognition.

The chief flowering trees at present are Chestnuts and Thorns, the latter remarkably late this year, but none the less welcome. The pink thorns are very effective and hardly surpassed by any other small tree. The variety known as *Crataegus oxyacantha coccineaplena*, despite its unwieldy name, is very effective when covered with corymbs of double scarlet flowers. There is an almost bewildering number of species of *Crataegus* now, and many are not of much value outside a botanic garden. There is, however, a few of the newer or less known ones which are deserving of attention, especially by those responsible for the maintenance of public parks, where objects of permanent beauty are likely to supersede the fleeting charms of "bedding out."

Crataegus Carrierei, though not new, might still be more freely planted in parks and arboreta. It makes a handsome specimen, bearing in summer erect corymbs of large white flowers, followed by orange-coloured fruits in autumn. *C. cordata*, also called the Washington Thorn, is quite an old species in cultivation, yet seldom seen in the average park or garden. It flowers later than most, as a rule, bearing corymbs

of white flowers followed by deep red fruits, which are very ornamental in winter. A couple of handsome new forms of American origin are *C. Ellwangeriana* and *C. Barryana*, which, judging by young plants, are likely to be vigorous growers, and will soon grow into fine specimens; both have large white flowers, and will be very effective when they have attained some size.

For clothing a dry sunny bank, few shrubs are more useful than the Spanish Gorse, *Genista*

hispanica, a dwarf prickly evergreen, now covered with golden yellow flowers. Easily raised from seeds, which are best sown in pots and put out in their positions when quite small, there should be no difficulty in raising stock for any purpose. The saving of seeds of shrubs is a matter which should receive attention from all, but especially those who have to maintain large stocks for planting. Of course ornamental garden varieties of some shrubs cannot be relied on to come true, but a great many species can, and not infrequently the seedlings grow with greater vigour and rapidity than cuttings.

Very beautiful just now are the many garden varieties of *Dierilla*, or as they are more commonly called, *Weigelia*. They are mostly



POTENTILLA FRUTICOSA VEITCHII (W. PURDIE 819.)

A very early flowering form.

shades of pink, though white and dark crimson varieties are also cultivated. Some of the best are *Eva Kathke*, dark crimson; *candida*, white; *Abel Carriere*, rosy carmine; *Floral*, soft rose; *Madame Lemoine*, white, becoming pink, and many others. Flowering in June, they are very welcome, and carry on the display commenced in spring till the *Philadelphuses* begin to scent the air.

Some very beautiful Rose species are also blooming now, notably *Rosa Willmottiae*, with fine arching shoots furnished with neat foliage and pink flowers. Perhaps the most striking,

however, is *Rosa Moyesii*, a sturdy grower, bearing most beautiful single flowers of a fine dark velvety red, singly or in pairs, all along the last year's branches and on side growths of older branches.

Early in June one of the prettiest shrubs in the garden was *Rosa Hugonis*, an extremely pretty species, with charming bright yellow flowers of good size, and among the earliest of the single roses to open. Not less striking is *R. spinosissima* var. *altissima*, often called *R. grandiflora*. A robust grower, spreading freely by underground "runners," this is usually the earliest Rose to flower, bearing in May and early June large creamy white flowers which at once attract attention.

Perhaps the sweetest of the June-flowering Roses is *Rosa rugosa* and its varieties and hybrids. The type has purplish rose-coloured flowers, very fragrant, and not the least of its charms lies in the beautiful bright red fruits which follow in the autumn. Some of the forms or hybrids of this species are very desirable, such as the double-white *Blanche de Coubert*; *Conrad Ferdinand Meyer*, with huge silvery pink blooms; *Rose Apples*, with fine trusses of carmine rose blossoms produced through summer and autumn, as well as numerous others which need not be dilated on at present.

Several interesting *Spiræas* have been flowering lately, notably *S. Henryi*, a vigorous shrub, bearing corymbs of white flowers on year old shoots. It is a native of China, named in honour of Dr. Henry, now Professor of Forestry in the Royal College of Science, Dublin, and to whom we are indebted for the first discovery of a great many Chinese trees and shrubs, seeds of which were subsequently sent home by Mr. Wilson. *S. Wilsoni* is similar to *S. Henryi*, but shows certain minor botanical differences which serve to distinguish it. All the honours, however, do not go to new introductions, for in *S. bracteata*, an old and valued species, we have one of the best June-flowering species; the neat corymbs of white flowers are produced all along the previous year's growths, and a well-grown specimen is quite a pleasing sight in June. Numerous other less showy species are now flowering, and quite a number of late ones are giving promise of a good show. Next month I will mention some of the best of the later flowers, as the *Spiræas* generally are worth some attention from those who want the most out of their shrubberies the season through.

Perhaps the most striking shrub now coming into flower here is *Olearia macrodonta* "large leaved variety." I do not know any other name for this form, but it is abundantly distinct from the ordinary form, bearing leaves twice as large as the latter and large corymbs of white flowers, making altogether a very striking object and a wonderful contrast with the tiny compact form known as *O. macrodonta* minor.

A good deal of pruning is always looming ahead; all the early flowerers as they go over should have the old flowering growths cut out or cut hard back, as the case may be. If not doing as well as desired, a good soaking of liquid manure will help the new growths, or, failing this, apply ordinary water, and mulch with manure. One of the shrubs to be thus dealt with at present is *Rubus deliciosus*, alluded to some time ago. This is a gem among shrubs, and should be well looked after.

Lilacs which have finished flowering now will benefit by thinning out in the case of old bushes, and younger ones which may be thin enough should at least have the old flower heads removed.

B., Dublin.

Notes for Novices.

VEGETABLES.—The middle of the month will be a good time to make a sowing of cabbage, which should come in for consumption during winter and early spring. Select an early border, preferably one from which early potatoes have just been removed. Bring the soil into fine tilth and make it level. Draw out lines one inch deep and at one foot apart, sow the seeds moderately thin, and cover lightly. The variety *Flower of Spring* is one of the best and most reliable for this particular sowing. Young plants of broccoli and sprouts that were planted out in rows in the open last month must be given close attention as to watering and hoeing. If slugs are troublesome, dust the plants with fresh soot or lime in the evening. Make good all blanks from time to time. Continue to make small sowings of lettuces and radishes every ten days or so. A few short lines of *Orange Jelly Turnip* may be sown once a fortnight. Pinch out the points of broad beans as soon as the first few pods are noticeable along the stem. By so doing the energy of the plant is more directed towards the development of the pods, and, therefore, brings them quicker to maturity. Earth up and stake successional rows of peas. Give copious supplies of water to young celery plants in trenches, and feed the most forward with liquid manure. Stir the soil frequently with a small hand fork, and dust the foliage occasionally with fresh soot to ward off attacks of the celery fly. The onion bed will be much benefited by the application of farmyard liquid manure and soot water twice a week. Vegetable marrows will require close attention, as they should now be growing freely. Pinch out the points of the strongest growths, and see that no greenfly is present on the undersides of the foliage. Continue to fill up every available plot of land with the various green vegetables required for winter and spring use. Take advantage of dull, showery weather for planting out, with the view of enabling the plants to become quickly established.

FRUIT.—Peach, nectarine, and apricot trees that are growing against a sunny wall must be given copious supplies of water every few weeks. Break up with a fork, to the depth of a couple of inches, the surface soil at the base of the trees, and mulch with two inches of half rotten cow manure. By so doing, this will keep the ground in a cool, moist condition for a longer period, and thus prevent any check to growth during a prolonged spell of drought. Feeding with soot water and liquid manure once every week will improve the size and quality of the fruits. Syringe the foliage late in the afternoon after a warm day. Tie in all young shoots that will be required for bearing fruit next season. Cut clean away the strong sappy growths as well as others that are surplus. Apple and pear trees may now be examined with the view of cutting back laterals and sub-laterals. It is bad practice to do the whole of one tree at one operation.

The upper part of the tree only should be done first, because this will have the tendency to direct the sap into the lower shoots, which as a rule, are the weakest. Tie in the leading growth securely where there is space for extension. Attend to watering and feeding, especially to those trees planted against walls. Thin out surplus shoots on plum trees, so that plenty of light and air can more readily reach the young growths that are to be retained for next season. Shorten all laterals to within four buds of the base. Supply liquid manure to gooseberry bushes in order to provide large fruits for dessert and exhibition purposes. Gooseberries enjoy rich cultivation, and no fruit responds more readily to it. As soon as the earliest crops of strawberries are cleared, cut off all runners, if not required for layering purposes, and remove the weeds. Feed the plants with farmyard liquid manure to encourage strong and robust crowns. Plantations that have begun to decline in fruitfulness should be heavily manured and dug up at once, preparatory for some other crop. Now is the time to commence the layering of runners for pot culture under glass, and also for the planting out of new beds. To set about the work of layering methodically, first, procure the desired quantity of clean three-inch pots and prepare a light compost of fine soil in fairly dry condition. In commencing to layer, take the runner in one hand and bend it to the bottom of the pot, and with the other fill in with the soil, so that when the operation is completed the little rootlet plant will be securely fixed on the surface in the centre of the pot. Keep the roots well supplied with moisture in order that root formation may be rapid. In a few weeks the runners can be severed from the parent plant. Place the plants in a partial shady position for a week, afterwards planting out in beds specially prepared some time previously. Water the young plants until well established, and stir the soil frequently between the rows to induce active growth.

FLOWER GARDEN.—Bulbs of early-flowering Tulips that have finished growth should now be taken up and spread out in a cool airy shed to dry off slowly before being stored away. As soon as Narcissus have lost their foliage they may be lifted also, selecting the largest and most plump for forcing purposes. Commence to layer border Carnations whenever the flowering period is over. Prepare a compost of fine sandy soil and procure the requisite quantity of pegs. A sharp knife will be essential for this operation. Remove several leaves from the lower part of the shoot to be operated on; cut through a joint, making the incision a good half-inch long. Peg this down carefully, cover up with one inch of soil, and water in well with a rose can. Attention to watering will be very necessary until the plants are sufficiently rooted, at which time cut off from the parent plant, lift, and pot up into three-inch pots. When the pots have become filled with roots, plant out in the autumn in light rich soil, but if the ground is of a heavy texture it will be well to retain the plants under the shelter of a cool frame until the following spring. Do not overwater during the winter, but give plenty of air on all favourable occasions.

M. D.

Hibernation of *Phytophthora infestans* in the Fresh Potato.

IT is clear from the author's experiments that the mycelium of *Phytophthora infestans* spreads in the tissues of the potato tuber and finally reaches the sprouts. The growth of the fungus is retarded when diseased tubers are held in dry soil or at temperatures below 5° C. Infected tubers rot rapidly when placed in warm wet soil. A temperature of 23 to 27° C. and a well watered soil are found to be most favourable for the mycelium to spread in the tuber and grow out into the sprouts, both when partially and when wholly covered with soil. Under these conditions the sprouts may become infected from four to twenty days after planting, regardless of their size and age. The time required is doubtless influenced by the proximity of the mycelium to the buds and by external conditions. The mycelium of *Ph. infestans* may remain alive in seed tubers planted in the soil for at least forty-five days, and even longer if soft rot has not deteriorated or destroyed the tissues.

Contrary to what Massee has stated, the author absolutely denies the latent existence of the potato fungus in the stems and leaves of plants growing from diseased tubers.

Laboratory tests show that the mycelium is capable of reaching the aerial portions of the plant where it develops and sporulates, causing foliage infection. Infected potato tubers used for seed purposes and planted under field conditions may cause the development of an epidemic. Ten such cases were found and followed in Northern Maine during the growing seasons of 1913 and 1914. Conidia of *P. infestans* may be borne on cut surfaces and on sprouts when planted under field conditions. As the cut surface corks over or the tuber decays, the fructification of the fungus decreases. Spores taken from tubers two or three weeks after they were first planted showed only limited germinating capacity.

No evidence was obtained tending to show that the conidia borne in the soil are instrumental in starting foliage infection. *Bull. of Ag. Intelligence and Plant Diseases*, January, 1916.

The Pear and Cherry Sawfly.

THE extremely repulsive larva of this sawfly is frequently most destructive to pear and cherry trees. It also infests apple, plum, damson, and peach trees, and is occasionally seen upon oak, birch, and other forest trees, as well as on some species of thorns. In the dry seasons of 1899 and 1901 cases occurred where nearly all the leaves fell from pear trees in consequence of the continuous attacks of larvae of this sawfly, which are sometimes called slugworms or snegs.

Heat and drought are, without doubt, favourable to the multiplication and destructive activity of this insect, while cool, showery weather interferes not only with the hatching of the eggs, which are laid upon the upper and under surfaces of the leaves, but also with the growth and health of the larvae. It is generally found that the larvae do not cause serious harm in wet seasons.

Hints for Amateurs.

By R. M. POLLOCK.

CATERPILLARS and greenfly will be troublesome from now on in all gardens, big or little. Those who have small gardens will find that a good garden syringe is really of more value than a sprayer. The syringe is the cheaper article and can be had for 12s. 6d., with three different nozzles, and all spraying can be done with this. It is money well spent. A syringe seldom goes out of order when put away and not in use. Unless sprayers are in constant use they go out of order, and are useless when wanted. In a garden where there is indoor work all the winter, they are perpetually being used, but for those who only have a small outdoor garden the sprayer is not used all the winter, it is therefore put away and not taken out until the first signs of fly in the spring, and it usually has then to pay a visit to the makers.

Quassia extract is the best all round wash for greenfly or any other fly on garden plants or on fruit trees. A pint tin only costs 1s., and it is a far more simple business to buy this, and use it as directed than to buy the chips and make the wash at home.

Quassia should always be kept well corked when not in use.

Pinks, Aubrietia, Arabis, Alyssum and other spring flowering plants may be increased by cuttings, and this may be started at once. The sooner they are in the better. A shady corner where the ground has been well worked, and some sand mixed with old potting material dug in will make a good nursery, and with the help of a small cap-glass a good stock can be raised. Where space is a consideration, these cuttings will root easily under the shade of a walk, but watering must be carefully attended to, and they should be moved out as soon as rooted, otherwise they would get drawn up and be weak delicate plants. In the case of Aubrietias, a little of the old wood taken with the cutting seems to help in rooting. It is very difficult to put in Aubrietia cuttings of nothing but the new growth without pinching or injuring them, however lightly they may be handled.

When the foliage of Daffodil and Tulip bulbs comes away easily in the hand, it is a sign that they are fit to lift. In small gardens where these bulbs are grown in clumps through the borders, it is quite unnecessary to lift yearly. A note of how they flower and how thick they have become in the clumps, and any other alterations, should be made at time of flowering, and a mark put to the varieties, then if necessary these can be lifted, divided, and the large bulbs replanted. If the bulbs are healthy, they need only be divided, and can be re-planted at once. Some varieties of Narcissus require lifting and dividing more frequently than others, especially the common variety Princeps, which increases very rapidly and requires moving every two or three years to keep up a good show of flower.

Keep the hoe going through the borders. If the weather gets dry and hot, rain-water will be scarce, and for herbaceous plants, loosening the soil round them is almost better than watering. Watering always cakes the surface of the soil, thus excluding air. The hoe will break up this

cake and allow any moisture there is to pass through. It also prevents weed seeds germinating.

A barrel or bucket with manure water in it should be prepared and kept in readiness. All plants such as Chrysanthemums, Michaelmas Daisies, and other herbaceous plants and Roses, will greatly benefit by occasional waterings with this, given after rain or after a good drenching of clear water. This manure water can be made by placing some fresh cow manure in a barrel or bucket, filling it up with water and leaving it for a day or so. The liquid can then be drained off or left covered in the barrel. The colour should be a dark brown, and when used can be diluted with clear water to the colour of ordinary tea. This should never be applied through the rose of a can, as it will only stop up the holes. Take the rose off the can and water the plants a short distance from their base, remembering that in most herbaceous plants the roots are some way out from the plant, as well as down in the ground.

Sweet Peas in borders will have to be watched, and care taken that they do not grow away from their supports. Early sowing will be in flower, and these should be picked thoroughly, so as to prolong the flowering season.

Genista Tinctoria Mantica.

THIS is a distinct and attractive variety of the "Dyer's Greenweed," flowering very freely in June, considerably in advance of the typical plant. Of comparatively low growth, it is suitable for the rockery or for the front of a shrubbery or other position requiring a plant of medium height, say, about two feet. The branches spread laterally, and in time a nice mound is formed, which looks extremely bright when covered with flowers. The flowers are, if anything, rather larger than those of the common plant, while the leaves and stems are furnished with soft hairs.

Campanula Pulloides Kewensis.

THIS is certainly one of the best and most satisfactory of the dwarfed Bellflowers, and seems much easier to manage than many others of which one hears a great deal more. Growing about nine inches high and bearing large deep purple pendant bells, it is a most beautiful plant when in flower. The leaves and stems are thickly covered with hairs, and the plant spreads freely by underground "runners."

Armeria gigantea.

THE Thrifts, as the Armerias are commonly called, are all useful plants in the garden. The common Thrift *Armeria maritima* is useful as an edging to paths and borders, though for beauty of flower it is surpassed by its variety *lauchena*, which has fine deep rose-coloured flowers; the yellow-leaved form is pretty, too, as a variation. Other species are quite tiny in stature and make pretty objects on the rockery,

while some, like the one mentioned at the top of this note, are of larger size, suitable either for the rockery or border. *A. gigantea* is probably only a selected form of *A. latifolia*, which varies considerably and has broad, deep green leaves growing in close tufts, and from among which arise tall, naked stems carrying a compact head of lilac-pink flowers. In the form noted above the flowers are of a fine deep pink, very effective and lasting for a considerable time. These larger growing species are extremely useful in a small garden, taking up little space, the leaves persisting for a long time, rendering the plant evergreen, and providing plenty of flowers for cutting or for the decoration of the garden.

THURF.

County Galway Horticultural and Home Industries Society.

THE above society will hold its Sixth Annual Exhibition of Fruits, Flowers, Vegetables, and Home Industries on Tuesday, 10th August, at Ballinasloe.

The prize schedule, with rules and regulations, is now before us, and we note that entries close on 1st August.

Classes A. and B. are open to all Ireland, and include money prizes and challenge cups for flowers and vegetables and numerous special prizes offered by the trade. Class C., open to tenant farmers not exceeding £30 valuation, contains prizes for window boxes, hardy flowers, annuals, vegetables, &c.

Class D., for cottagers and artisans, is similar to that for tenant farmers, while Class E., open to all, includes prizes for farm produce, home-made bread, jam, honey, bottled fruits, &c.

The exhibition deserves every success, and the society is to be congratulated on a very fine schedule, and we trust that the weather conditions may be favourable and the entries numerous.

Trials of Autumn-sown Cabbages at Wisley, 1915-16.

THE following awards have been made to Autumn-sown Cabbages by the Council of the Royal Horticultural Society after trial at Wisley:—

First Class Certificates—No. 85, Ellam's Early Dwarf, sent by Messrs. Barr & Sons. Award of Merit—No. 33, First and Best, introduced by Hurst & Sons, sent by Barr & Sons; No. 29, Barr's Eclipse, introduced and sent by Messrs. Barr; No. 73, Sutton's Harbinger, raised, introduced, and sent by Messrs. Sutton & Sons. Highly Commended (XXX)—No. 22, Flower of Spring, sent by Messrs. R. Veitch & Son; No. 71, Sutton's April, raised, introduced, and sent by Messrs. Sutton & Sons; No. 102, Spring Beauty, raised, introduced, and sent by Messrs. Bath, Ltd.; No. 21, Sutton's Flower of Spring, introduced and sent by Messrs. Sutton & Sons; No. 34, First and Best (Hurst's), introduced by Messrs. Hurst, sent by Messrs. Barr & Sons.

Commended (XX)—No. 30, Early Favourite, sent by Mr. J. P. Farr; No. 31, Sutton's Favourite, raised introduced, and sent by Messrs. Sutton & Sons.

Notes taken at Kew.

THE rock garden here is most interesting at present, as is the Alpine house, which is a mass of bloom, the outstanding features of which are *Androsace coccinea*, *Primula Rushyi*, *P. tibetica*, and *Saxifraga* "Dr. Ramsey," undoubtedly one of the most effective of the *Aizoon* group, its heavily spotted eye gives it an almost pink effect. *Sax. cochlearis* and *Sax. Kolentiana*, with pink flowers, are also remarkably good.

In the rock garden *Dianthus frigidus*, *Wahlenbergia dinarica*, like *Pumilio*, but paler in colour, and *Meconopsis aculeata*, an early-flowering variety about one foot in height, with mauvish-blue flowers, were noted, and for larger effects *Aster subcaeruleus*, *Veronica austriaca*, *Erigeron multiradiatus*, *Pentstemon confertus*, *Dianthus* "Spencer Bickham," *Thymus odoratissimus*, and *Saponaria Weinmanniana*.

Saxifraga Hausmanni in full bloom and some fine flowering spikes of *Sax. longifolia* blooming on rocks above a patch of *Ethionema Warley* hybrid and a very good *Dianthus Caryophyllus* made a very pleasing corner.

Calochortus lilacina and *C. Benthami*, flowering near the path, were also noted.

M. E.

Prevention of the Early Summer Outbreak of the American Gooseberry Mildew.

EXPERIMENTS which have been conducted during the last three years at Wisley on the American gooseberry mildew have this year been productive of striking results. By use of a modified form of Burgundy mixture an outbreak on the foliage and berries of over one hundred bushes, comprising several varieties of gooseberry, exposed to infection has been completely prevented.

The mixture was used according to the following formula:—Strength I.—Copper sulphate, 8½ ozs.; washing soda, 9½ ozs.; soap, 100 ozs.; water, 100 gals. Strength II.—Copper sulphate, 40½ ozs.; washing soda, 15½ ozs.; soap, 100 ozs.; water, 100 gals. The chemicals were dissolved separately, the solutions mixed when quite cold, and the soap added last. Both strengths proved effective.

Spraying took place on May 20th at 5 p.m. (Willett's time), when the bushes were just dry after gentle rain in the afternoon.

In the critical experiment the sprayed and unsprayed bushes were situated in a square of one hundred square feet area, outlined at the angles by old bushes to provide sources of infection. There are within each square three unsprayed bushes and one sprayed bush of the same variety. Of the sixty squares over forty are now infected with mildew, some very heavily, the outbreak occurring chiefly in the berries.

At the time of writing no mildew had been detected in any of the sprayed bushes, even when completely surrounded by infected ones. Whereas all the berries on the sprayed bushes are absolutely free from mildew, many on the unsprayed bushes are heavily infected with the early "white" stage of the disease.

In a further experiment all the bushes in a small plot adjacent to the main experimental area were sprayed and are now also free from mildew.

Burgundy sprays leave a fine deposit on the berries, consisting of a mixture of the precipitates of copper carbonate and sodium sulphate. But since nearly the whole of this deposit can be removed by a sharp rinsing in tap water there should be no difficulty in devising a plan for thoroughly cleansing the berries.

DR. HORNE.

R. H. S. Gardens, Wisley.

A Note from Nenagh.

A HOLLY at Rockford, still in fruit (May 1904), has a very fine appearance, especially when seen from a distance. Although some other crops suffer greatly from the attacks of birds, this Holly has escaped. A Chrysanthemum, which in the ordinary course of events should have bloomed in mid-winter, but which was kept dwarf and prevented from flowering, is now bearing three good blooms in the conservatory. Strawberries, raspberries and black currants give good promise, but the prospect of the apple and pear crop is not so bright. The attention given to the apple is increasing, but in Ireland we have yet to make great advances in fruit culture if we are to achieve anything like reasonable success. It is useless trying to reclaim old worn out trees that have lived through many years without attention. In many places, especially in the south of Ireland, old and useless trees are retained when their places could be profitably filled by young healthy trees which, given attention, would soon repay the small cost entailed. In some districts large areas are planted, but in many cases there is evidence of want of skill in the pruning. The trees, to produce the best results, must have skilled treatment of root and branch. P. HANNUAN in *Gardening Illustrated*.

The Irish Forestry Society.

THE fifteenth annual general meeting of the society was held on the 17th ult. at Bray Head Hotel, Bray, Co. Wicklow. This meeting was held in conjunction with an excursion to the Kibberrary demesne, by kind permission of the Earl of Meath; and, blessed by magnificent weather, the good company of members and friends, who were ably conducted through the old world gardens and historic demesne by Mr. L. Childs, had an enjoyable time. Much was seen to admire from a forestry point of view, a notable feature being the grand old Scots firs, with their perfectly straight, clean boles. Beech, too, are very fine, and the planting generally under the shelter of Bray Head possesses many points of interest, particularly one sheltered area devoted to New Zealand subjects, including a specimen of the rare Kauri pine.

The Month's Work.

The Flower Garden.

By CHARLES COPPIN, Gardener and Forester to Lord Curzon, Castle Bore, Clontarke, Co. Wexford.

THIS summer has so far been showery, rain has been frequent, and weeds appear to have a good time. The gardener will need to be vigilant on dry days, to keep the hoe moving wherever possible. In flower beds weeds must be removed by hand and the surface moved by the hoe as lightly as possible. Garden walks should be kept scrupulously clean, and grass edges neatly clipped every fortnight. An application of an approved weed killer at this time of the year ensures clean walks to the end of the year. This is certainly the cheapest and most efficient method of dealing with what is sometimes a troublesome matter, and any failure is almost in every case the result of not understanding the simple method of putting it on. First the walk should be cleaned, and then after the ground has been moistened by rain, apply the weed-killer when there are hopes of a day's fine weather to follow. A little watering the weather will usually give a favourable opportunity. The most common mistake is to put the weed-killer on first, and then when clearing off the weeds a lot of the weed-killer is removed with them. By removing the weeds first the ground is poisoned against the young weeds and seeds of weeds which are in the walks, and a clean walk follows for the rest of the year. The old practice of hoeing and raking walks should be condemned as a waste of labour and most uncomfortable to walk on.

Dahlia should be disbudded to five strong shoots. Four bamboo canes or light stakes placed around the plant equal distance apart, and each shoot securely fastened to the centre stake and these other four. The flower buds should be removed and the plant grown with a single stem to each stake until each one is 2 feet high, when the flowers will come better in every way. The Dahlia is at its best in August and September, and any attempt to flower it in July spoils the plants for their proper season. A good plan in the garden is to grow flowers in their proper season and get the best results.

Carnations will be in flower, and towards the end of the month provision should be made to start layering the young shoots (see May issue). A good plan is to layer each variety as it is cut or passes out of flower, and not to wait until all the flowers are over; the time for the layers to root is short, before the autumn is on us.

Gladioli will be benefited, should the weather be dry, with heavy waterings, with a small quantity of liquid manure added to the water. I do not like artificial manures for Gladioli.

Violets also should be kept growing freely and well watered if the weather be dry. A dusting of soot between the plants in showery weather is also helpful, but be careful to do this very lightly and frequently, and to wash the soot off the foliage by waterings if the rain does not clean them properly.

Chrysanthemums in pots will be growing freely, and will want to be carefully watered until the new soil is full of roots; this should be about the middle of the month. After this, if

the roots are plentiful and the plants are growing freely, a little manure water can be given every second day, followed by clear soot water as an alternative feed. Bear in mind that until the flower buds are showing it is better to give clean water every second day; after the buds are set give manure water every week day and clean water on Sunday for a purifier of the soil. The plants later on will want water at least three times a day in hot weather.

Cyclamen will be growing freely in their flowering pots, and must be shaded from direct sunlight. I grow them in a cold frame with plenty of air on, unless the nights are cold; they are sprayed over with clean water twice a day, and are not allowed to get dry, which is fatal. Should thrips appear, it is better to remove them at once to a greenhouse and fumigate them three times on succeeding nights. Some help can be given by sponging the leaves and syringing with clear soot water, but a bad case of thrip is usually fatal when the flowering season arrives, and is always the result of bad management.

A few pots of *Freesia refracta alba* potted towards the end of this month will enable anyone with a warm greenhouse to have these lovely flowers ready to cut at Christmas. Bulbs for this early flowering should be planted in 5-inch pots, seven bulbs in each pot, and placed in a frame where direct sunlight cannot reach them until roots are forming and the young growth commences.

Mignonette sown in June for Christmas flowering should be thinned as soon as the young plants are large enough to handle. These should only be covered with glass when heavy showers are liable to disturb the young seedlings.

Malmaisons should be layered as soon as the plants are passed out of flower. This is best done in a cold frame to protect them from rains until the plants are rooted. The operation is exactly the same as recommended for the border varieties. Some of the best shaped and healthy plants can be taken out of their pots, the soil slightly shaken off and repotted in the same size pots. They should be put into a frame and kept close for a few days; when new roots are formed they can be potted on into larger pots—an 8-inch is large enough for a one year old plant, and in these they will flower next year, carrying from 10 to 12 flower spikes. Great care must be exercised in watering these plants until roots are freely made. Many plants in the rock garden which have finished flowering will still have cuttings available for propagation. These tiny plants must be wintered in a cold frame or greenhouse, and will make plants for filling up gaps next April.

May flowering Tulips—Darwins, the cottage type, and others—are better if lifted this month and ripened in the sun; they can be stored then for planting in October.

Sweet Peas must be kept watered, and all the plants should be picked clean at least once every fortnight. Seedlings of biennials must be pricked out into nursery beds as soon as they are 3 inches high. Give your Lily of the Valley a good soaking of liquid manure during this month to swell the crowns for next year's flower; it will be too late after this month. Make notes of any plant or varieties of the different florist flowers during their flowering season for a guide for propagation for next year's planting. This specially applies to Roses, Carnations, Dahlias, and any particular favourite hobby one may have in hand.

Lawns in small gardens or in town gardens would be improved by a sprinkling with a hose pipe should the weather be dry. Tennis courts and croquet lawns needed for special purposes will require watering regularly during dry weather.

The Fruit Garden.

By T. E. TOMLIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

THINNING STONE FRUITS.—Early in the month stoning will be finished, and the final thinning of stone fruits can be carried out. No hard and fast rule can be laid down as to the number of fruits that can with safety be left to mature on a tree, as this must be determined by the size and vigour of each tree and by the kind that is being dealt with. If the tree is young and is making very strong growth, a good heavy crop will check its exuberance and greatly benefit it, but if the tree is old and not growing too freely, the crop left to mature must be correspondingly smaller to ensure enough strength being left to build up next year's fruit buds. In any case peaches should have from 8 inches to a foot of space between each fruit. Plums can still be left fairly thick, as, after the middle of the month, they can gradually be thinned for using green.

SUMMER PRUNING.—Apples and pears can now be summer pruned, beginning with the wall and espalier trees. All side growths should be cut back to about the sixth leaf, remembering that the end buds left will most likely grow out again, so that the shoot must be left sufficiently long to enable one to cut behind these secondary growths to a dormant bud when pruning next winter. The leading shoot on each branch should not be shortened, and where required a conveniently placed shoot can be left to form a new branch. The great advantages of summer pruning are not only apparent in the greatly improved appearance of the current year's crop, owing to the free admission of sunlight and air to all parts of the tree, but it also does much to ensure the proper development and thorough ripening of next year's fruit buds.

WALL TREES.—Continue to tie in the leading growths of trees growing on walls, and stop any that have filled the available space. The growths of peaches and nectarines must be attended to as required, tying in just sufficient to furnish the tree next year, and removing altogether all gross or unnecessary growths which otherwise overcrowd the tree, than which nothing is worse. Morella cherries will commence to colour about the middle of the month, and it will be well to tie in the young growths before putting on the nets. If there are any signs of aphid on the trees a final syringing with an insecticide should be given before colouring commences.

STRAWBERRIES.—As the different varieties go out of bearing, the beds should be cleared of weeds, decaying foliage, and surplus runners, leaving enough of the latter to supply young plants for future requirements. These should be layered without delay either into small pots filled with loam, or, if these are not available, turves can be cut about a foot square, from a pasture, and about 1 inches thick, and placed grass side downwards on the beds; each of these will accommodate about a dozen layers. Where scarcity of labour renders both these methods impossible, good results may be obtained by

simply forking up the soil between the rows of old plants, and securing the runners in the spaces so treated. Nothing is better for securing the runners in position than a good sized pebble or piece of stone, these have the effect of keeping the soil underneath them cool and moist, thus rendering continual watering unnecessary, and encouraging quick root action in hot dry weather. If the site for the new bed was trenched last winter, and has been cropped with early potatoes, little further preparation will be required, except to rake the ground level, and to draw lines 2 feet apart, in which the young plants can be planted at from 18 inches to 2 feet apart, according to the variety. Such as Royal Sovereign and Bedford Champion will require the latter distance, while the former will be space enough to leave between Givon's Late Prolific, Waterloo, and those of like habit of growth.

Raspberries should be gathered at frequent intervals when ripe, so as to get the whole crop in good condition. No fruit deteriorates so quickly if not picked as soon as ripe. If dry weather prevails the crop will be greatly improved by copious waterings after each picking. The fruit being very soft should be perfectly dry when picked.

GATHERING FRUIT.—Towards the end of the month apricots and peaches will be approaching ripeness, and the trees should be gone over daily, so as to secure them in perfect condition. These fruits should be picked a day or two before they would otherwise drop from the trees. At this time, if the hand is placed underneath the fruit, and the latter gently raised, it will, if fit, readily part from the stalk, after which a day or two in a cool fruit room will make it perfect for home consumption, but if required for sending a distance, the picking should be done in the cool of the morning if dry, and the fruit should be packed and despatched immediately.

GENERAL REMARKS.—All trees carrying good crops of fruit will well repay the extra trouble of watering and mulching during dry weather, especially so in the case of trees growing on walls. Weak liquid manure water at frequent intervals, or a dressing of a good compound fruit manure well watered in, will materially assist the trees, and will improve the size and flavour of the fruit. In all cases where watering is not possible, the ground should be hoed often during dry weather. And the surface soil well pulverised. If woolly aphid is troublesome, no time should be lost in dealing with it. A little methylated spirit worked into all the crevices in the bark frequented by the insects with a stiff brush will be found to be an effectual method of killing them. Continue to net wall fruit trees as the fruit ripens, and take off and store strawberry nets when perfectly dry, after the fruit is finished.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

BROCCOLI.—Late spring and summer broccoli may still be transplanted. Should the weather be dry, draw drills about three inches, and at a distance of not less than two feet apart; water the drills before planting, and no further watering will be required. During the past showery

weather slugs have been rather troublesome to Brassicas when transplanted to their permanent quarters. By giving the stems and roots a dip in the following mixture helps to ward off slugs and also helps to eradicate the gall weevil. Take equal parts of air-slaked lime and soot, with enough water to make a thin paste. Should the plants be infested with cabbage fly maggots, the following remedy will be found beneficial:—Hot lime soaked in water for about twenty-four hours; when clear, wash the infested plants with the liquid.

PEAS. All peas should be sown by this date. Water and mulch all mid-season and late sown varieties. Keep a sharp look out for insect pests, and spray with a suitable insecticide should the crop be attacked. Pea weevil may be prevented from doing serious damage by using some quick acting stimulant and dusting the plants with lime when the foliage is wet.

TOMATOES. During this month outside tomatoes will require attention. Keep the plants free from side shoots, and when the fourth cluster of fruit appears pinch out the top of the plant. In dry weather water should be plentifully given if the plants appear to require it. A mulching of loose leafy manure will, if applied, be of great advantage, and will prevent rapid evaporation. Mid-season and late tomatoes under glass are now showing a great crop of fruit. If planted on a border a dressing of artificial manure at the rate of one ounce to the square yard will induce the fruit to mature more quickly. A top dressing of decayed manure may be given. If grown in pots or where the space is limited the plants will now require an ample supply of water and a dressing of artificial manure or diluted liquid manure at intervals, according to stimulant used.

CELERY.—Plant late celery in prepared trenches; give plenty of water during dry weather, and keep the plants free from suckers. In gardens where the soil is of a damp nature, do not earth up above ground level till the plants are strong. Should celery leaf blight attack the plants, spray with Bordeaux mixture two or three times during the season.

CABBAGE.—Make a sowing of cabbage about the last week of this month. Flower of Spring and Ellam's Early are two good varieties for autumn planting. Make a further planting of cabbage for late autumn and winter use. Plant late Savoy; New Year and Latest of All will last well into the spring.

TURNIPS.—Sow a good breadth of turnips; sow thinly; thin in the early seedling stage; dust with soot or lime frequently to check turnip fly.

LEEKs.—Plant out the main crop of leeks early this month at a distance advised in last month's notes.

FRENCH BEANS.—Make the final sowing of French beans early this month on a border sheltered from the early morning sun, or where they can be protected from the early autumn frost. A sowing may be made in a frame during the last week in July.

PARSLEY.—Any time during the month a sowing of parsley should be made in a frame for winter supply. A sowing should also be made on a well sheltered border, where it can be protected during the winter.

SALADS.—Continue to sow batches of lettuce, endive, corn salad, mustard, and cress.

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AUGUST
1916

EDITOR—J. W. BESANT.

Hardy Heaths for the Rock Garden.

I HAVE often wondered that we do not see and hear more about the hardy Heaths. Few plants are so entirely satisfactory when suitably placed and none are less spoiled by the vagaries of the weather. Then their culture presents so little difficulty, provided the soil is free from lime, and one or two varieties will even tolerate this. Peat is desirable, but not necessary, and in any light sandy soil, with a full exposure to sun and air, the hardy Heaths will flourish. Very often we see them associated with dwarf shrubs, perhaps as a sort of edging, but I always think that the position *par excellence* for them is the rock garden, a part of it devoted entirely, or almost entirely, to the charming family of the Heath which possesses a type of beauty so distinct, that very few things, unless, perhaps, some of the small shrubby Veronicas, associate well with it.

Some years ago I was rather puzzled how to plant to the best advantage a rather prominent part of our small rock garden lying in full view of the house, and which had previously been laid out in long beds which were gorgeous with Begonias in summer and early autumn. The

beds were cleared away and the ground roughly sloped down to the tennis court below, facing S. S.W., with full exposure except what shelter the house affords from the north. About this

time I had some fine plants of *Erica vagans alba* in flower and a couple of specimens of *Menziesia polifolia*, and it struck me that if more of the same genus could be got together, that part of the garden could be made a very distinct and beautiful feature. I was fortunate in being able to pay a visit to a lovely little rock garden where there is a very fine collection of hardy Heaths, and where I saw and took note of the best varieties. Not every nurseryman stocks more than about half a dozen of the best known, but I found one who evidently made a speciality of *Ericas*, and from him I obtained the sorts I thought most beautiful. Scattered through the rock gar-



ERICA VEITCHII.
A Fine Hardy Hybrid.

den I had already a few, and these I moved successfully to their new quarters. All the planting was done during autumn, and I found that, with a little attention to shading during a few hours of hot sunshine, they kept on flowering quite gaily,

Since then I have added at various times, even during mid-summer, and have not had a single failure. Firm planting, and always a shade below what had been the level, produces the best results. Water, if it has to be given in very dry weather, must be given generously.

The flowering season begins for us with *Erica* *Med.* *hybrida*, which opens in early January, but for months previous this variety and *E. carnea* are very beautiful, with their fine foliage and masses of yellowish buds. They run each other close in point of time, and are always far ahead of the white form.

We have here the old pink-flowered *carnea* which is not so often seen now as the newer rose-coloured form, but is quite as pretty, only, of course, it is important they should not be planted near each other, though either is all right near *E. Med.* *hybrida*. The white-flowered *E. carnea* is not nearly so robust: it grows very slowly and is very dwarf and compact, but grown near the path where the eye can rest on it it is very charming.

I suppose *E. lusitanica* should come next, but being a little doubtful of its hardihood I have not as yet included it; however, there is no blank, for *E. carnea* lasts so long that *Menziesia* is opening its big bells before it disappears. I think the wild variety of this, with its shorter, lighter-coloured bells, comes in earlier and lasts longer than the darker garden forms—at least it does here—and often flowers to the beginning of December. I planted it with *E. vagans* on the highest ground, and with them *Veronica pinguifolia*. Some of the varieties of *E. cinerea* are very early. A fine, bright, rose-coloured form, which I found growing wild, is in before any other. It shows up well planted near *E. vagans*, which comes into flower about the end of July.

Menziesia bicolor is also an early and very valuable variety, with its multi-coloured bells ranging from deep purple to pure white on the same plant. *E. Tetralix*, I believe, is often in before it, and flowers at least twice during the season. The white form of this is good, but scarcely so pretty or waxy-looking as the pale pink.

A near relation of *Tetralix* is *E. Watsoni*; its habit is very pleasing, and it grows most freely, but it is much dwarfer than the cross-leaved Heath and the bells much larger.

On higher ground there is a good specimen of the Cornish Heath, *E. stricta*; its upright habit and bright green foliage makes it very distinct. I believe this variety should flower early in August, but it is a newcomer here, and planted early in July if started to grow instead of putting up flower buds.

E. Maweana, which begins in August, is a most precious thing: the fine bells of good red-purple and the dark-green, hairy foliage make it an object of much admiration. I fancy it is not quite so indifferent to bitter winds and cold as some of its neighbours, and that this is why its winter coat is brownish and shabby looking.

We boast three varieties of the white *Ling*, *E. vulgaris*; the earliest of these is *E. v. gracile*, very pretty, with a tinge of blush in its white bells; then the common white, which is often seen on our own hills, and during late autumn a splendid form, *E. v. tomentosa*. I hoped this would have flowered same time as *E. Alporti*, the darkest both in flower and foliage, but it was rather late. However, in *E. aurea* we have the touch of lightness that brings out the full beauty of *Alporti*; its pink bells do not make much show, but its golden foliage and graceful habit are perfection.

E. ciliaris alba is a real treasure. I believe it is rather new, and here it flowered in mid-September last year, which puzzled me considerably, but evidently it was the effect of recent moving, as it was a newcomer. For this season it promises to be very much earlier, and now, at the end of June, is very forward. It exceeded my highest expectations, and in colour and freedom of growth leaves nothing to be desired.

So much for the varieties of Heath which add no little interest and beauty to the garden from January to December. With them I associated a few of the small shrubby *Veronicas*. *V. pinguifolia*, about one foot high, white-flowered; *V. pimeleoides*, also with very glaucous foliage, but distinctly margined with red and having blue flowers, much larger than those of *pinguifolia* and borne on stems long enough to be easily removed when faded, and thus preventing the brown, untidy appearance of *pinguifolia* after flowering. *V. Epaeridea* I have planted near *E. Maweana*, where its golden-green foliage shows to the best advantage, and we have not missed its flowers, which, I believe, even in its own country, are sparingly produced. This characteristic it shares with *V. Hectori*, which is pleasing and distinct, with its green whipcord-like stems. The only other shrubs I have ventured to add are *Polygala chamæbuxus* and, in a very hot sandy spot, *Genista hispanica nana*, the dwarf Spanish furze, a most interesting little subject, fiercely spiny except when the fresh growth is forming. It lasts a long time in flower, and supplies a welcome touch of yellow early in the season.

I have avoided planting *Cistuses* here, even of the smaller varieties, the flowers being of so completely different a type, and also I fancy

they would ill bear the exposure to high winds that the Heaths are mostly quite equal to.

Though this bed attains its fullest beauty in summer and autumn, it is wonderfully attractive throughout the year, and I find some of the most precious small bulbs enjoy the sheltered spots between the dwarf bushes. There the charming little *Crocus Tommaseanus* flowered beautifully this spring, close to *E. carnea*, and its foliage is so light that once out of bloom one is not aware of its pre-

I hope, as time goes on, to add one or two more varieties of Heaths. First of all I would have *E. mediterranean alba*, which would come in well before *E. carnea* and *E. Med. hybrida* were out, and grows into a nice upright, compact bush; then, doubtfully and anxiously, in the most sheltered corner, I would place *E. Veitchii*. I have never seen it in flower, but it is said to be harder than either of its parents—*lusitanica* and *arborea*—and "to possess the best qualities of both." H. S. W.

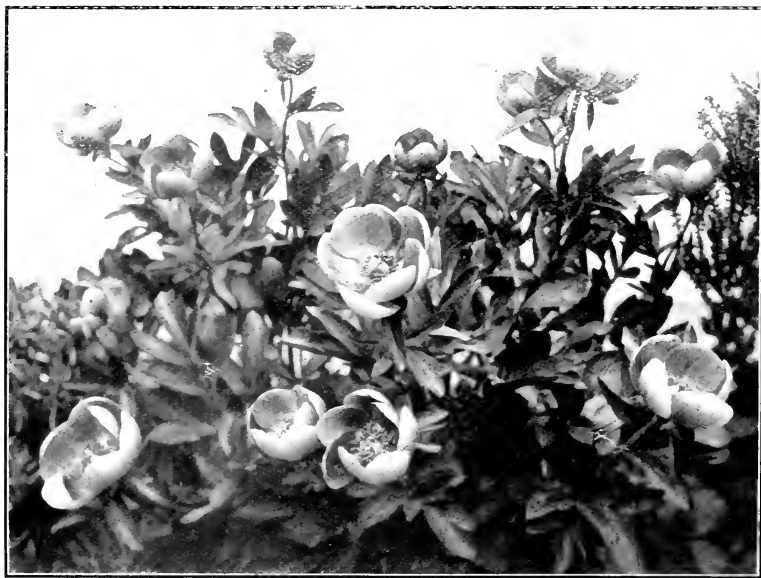


Photo by

PEONIA LOBATA IN BOTANIC GARDENS, CAMBRIDGE.

[F. G. Preshon

sence, the great drawback to many of the larger sorts being the brown feeding "grass."

In the rough, irregular stone edging a few Ferns look well. The common Polypody and Black Spleenwort do nicely, but all soft luxurious green seems out of place and have been removed. One rather precious little shrub I have omitted, *Rhododendron hirsutum*. It comes in where the Heath bed is winding round into another part of the rock garden, and here also is a new treasure which in May this year was glorious for about a fortnight, a tiny foot-high bush of pink *Azalea mollis*, whose foliage, as the season advances, will be almost as valuable as its flower.

Pæonia officinalis lobata.

This is an exceedingly beautiful hardy plant, and quite one of the best of the whole genus, but it must be somewhat rare, as it is so seldom seen, even in gardens of botanical interest. The colour is very pleasing and distinct, perhaps best described as glowing orange-scarlet, or in the deepest parts tomato-red. The plant is elegant and compact, the beautiful cup-shaped flowers being borne on stiff stems above the fine lacinated foliage, and is far superior to many others grown in gardens.

It was first received into the country by a Mr. Alexander Macleay, in whose garden it

flowered in 1821. It was considered, according to Mr. Sabina, who had probably the largest collection of *Pæonias* at that time, to be a distinct species, under the name of *P. lobata*, but it has since been classed as a variety of *P. officinalis*. The origin of it appears to be unknown.

F. G. PRESTON.

Deutzia Wilsoni.

THIS beautiful *Deutzia* is a native of Central and Western China. It was named by Mr. Duthie in compliment to Mr. E. H. Wilson, who discovered and introduced the species by means of seeds when collecting on behalf of Messrs. J. Veitch & Sons, Ltd., in 1901. The plant first flowered in their Coombe Wood Nursery, and furnished the material for the figure in the *Botanical Magazine*, tab. 8083.

Deutzia Wilsoni is a vigorous growing species, forming a shapely bush 5 to 6 feet high. The pure white flowers are freely produced on the ripened wood made the previous season, the vigorous young sucker-like growths being particularly well flowered. Produced in corymbose panicles, the individual blossoms are almost an inch across. Flowering in mid-June, this is a particularly valuable shrub, in addition to being, on its merits, one of the best *Deutzia* in cultivation. Thriving in well-tilled garden soil, cuttings provide a ready means of propagation. These may be inserted in a close frame with gentle bottom heat during July, or later in a cold frame.

A. O.

Incarvilleas.

THESE choice plants must be considered as conferring on the outdoor garden that appearance of richness and distinction which the wondrous beauty of *Cattleyas* and other *Orchids* does to the indoor collections. It is possible we do not yet know all the requirements of the *Incarvilleas*, but, on the whole, cultivation is not difficult, and the most of the species seem quite hardy.

Although one or two species have been known for quite a long time it was not until the introduction of *I. Delavayi*, some fourteen or fifteen years ago, that they became popular with gardeners. When first shown this remarkable plant at once attracted notice, and was soon eagerly sought after. The beautiful trumpet-shaped, rosy-red flowers, produced above hand-some, deeply cut, dark-green leaves, make a

striking picture, and when a mass of some dozens of plants is seen in bloom it is a sight not soon forgotten.

Of equal merit is *I. grandiflora*, a plant of dwarfer habit, being about a foot or fifteen inches high when in flower, whereas strong plants of *I. Delavayi* will be two feet high. The colour of *I. grandiflora* differs somewhat from *I. Delavayi*, being described as rosy crimson, both species having yellow throats.

I. compacta is a much rarer plant, rarely seen in cultivation, and probably difficult to get true. Seeds are sometimes offered in Continental catalogues, but rarely prove to be correct. It is similar in habit and colour to the others mentioned above, but is smaller.

For general purposes the two first named are the most satisfactory, and we may include also the newer *I. grandiflora brevipes*, a robust plant with the habit and appearance of *I. Delavayi*. *I. lutea*, the newest of the species, has not flowered yet in Britain or Ireland as far as I know. The leaves resemble those of the species described above, but the flowers are yellow. Photographs taken in its native habitat in China show it to be a remarkably handsome plant, and we must hope that soon it will reach the flowering stage in this country.

Of rather different habit and bearing smaller flowers is *I. Olge*, often referred to as *I. Koopmannii*, a native of Turkestan. With finely-divided leaves and smaller bright rose-coloured flowers, this is quite a pretty and desirable plant, eminently suitable for the rockery or a sunny border.

Less hardy, though similar in appearance, is *I. sinensis*, with much divided leaves and larger scarlet flowers.

All the *Incarvilleas* rejoice in a deep rather sandy soil, with ample moisture during the growing season, but too much surface moisture in winter is detrimental and apt to rot the crowns. The thick fleshy roots are very brittle, so that it is best to get the plants into their positions when quite young. Seeds are freely produced by the larger-flowered species like *Delavayi*, but more sparingly by the others. The seeds may be sown in spring in light sandy soil, and will germinate well in a cold frame. They should be pricked out in a similar compost when large enough and left then until the following spring, when they can be separated and grown on in pots till large enough to plant out. *I. sinensis* does well planted at the base of a wall or in a narrow sunny border facing south and with protection from the north and east.

J. W. B.

Primula "Asthore."

THIS charming hybrid is one of the most beautiful plants in the garden in June, and this year, in common with other Primulas, it has been very fine. It is a product of *P. bulleyana* crossed with *P. Beesiana*, and is of vigorous growth, producing tall spikes of charming soft pink flowers borne in tiers. Seeds are freely produced, and, as might be expected, these show much variation in colour and form. A batch of seedlings raised in 1914 have flowered here this year, and are proving most interesting. Some few have reverted to the parents, and plants of pure *P. bulleyana* and *P. Beesiana* occur, but the majority differ from the parent and also from the grandparents. Some are rather small and weak, though quite pretty withal, but the majority are as robust as *P. Asthore*, and show a wide range in colour. Orange, orange-red, pink, salmon and various art shades have been produced, and several are being marked to increase by division. There seems no end to the possibilities in this genus, and we may look forward to many lovely pictures in our gardens in the future.

GLASNEVIN.

Æsculus indica.

FIRST introduced by Colonel H. Bunbury in 1851, it is surprising the Indian horse-chestnut has not been more freely planted in this country, at least in the south and west. The first tree introduced is said to be a specimen at Barton in Suffolk, now some 70 feet high. As a large specimen tree for the pleasure grounds and park, the Indian horse-chestnut should prove as ornamental as the common horse-chestnut, except in cold or otherwise unfavourable localities. A native of

the North-west Himalayas, the trees reach a height of 100 feet, sometimes more. The shining dark-green leaves suggest tropical vegetation, and considerably enhance the beauty of the cylindrical panicles of flowers, one foot or more in length. The flowers are white, with the usual rosy flush and blotches. These are freely produced in June, and usually extend into July. Several trees at Kew mature good seeds during most seasons, providing a ready means of

propagation. Over 100 young trees were raised from last season's crop of fruits, a number of these being included in the sale of plants organised by the Royal Horticultural Society on behalf of the Red Cross.

A. O.



PRIMULA WERRINGTONENSIS.
(See Note in June issue.)

Drimys Winteri.

UNFORTUNATELY this beautiful shrub is not perfectly hardy in many parts of the British Isles, but if given a warm corner, in a sheltered position, it can be grown with success outside, and much better specimens obtained than when grown under glass. During May it produces very freely its creamy white flowers, which are borne in terminal clusters of loose umbels.

It belongs to the family of Magnoliaceae, and is the source of the bitter aromatic bark, known as Winter's Bark, which was introduced in 1579 from Chili and the Straits of Magellan by Dr. Winter, when accompanying Sir Francis Drake on a voyage, but not until about 1827 was it introduced into this country as a living plant. Apart from its beauty as a flowering shrub, its evergreen character and the brilliant red bark of the young wood adds to its attractiveness.

There are several species of *Drimys*, but the only other fairly well known to cultivation is *Drimys aromatica*, a more erect tree, redder in appearance, although not so handsome; sometimes known as *Tasmannia aromatica*.

Notes for Novices.

VEGETABLES. Early this month sow a few more lines of cabbage seed on a well-prepared border, also several lines of the Tripoli onion, Giant, Rocca, which is one of the best varieties to stand the winter. Draw out shallow drills at 15 inches apart, sow the seed moderately thin, and cover lightly with fine soil. Make a small sowing of winter spinach in an open situation, drawing out the drills $1\frac{1}{2}$ inches deep and at 18 inches apart. Thin out the seedlings to 8 inches asunder when they have reached a height of 2 inches; stir the soil between the rows frequently. Supply abundance of water to celery trenches in dry weather. Earthing up of the early crop will now demand attention. Before commencing this operation firstly snap clean off all side growths at the base of the plants. Around each plant tie a piece of raffia in order to keep the growths compact and to prevent the soil from entering into the heart of the plant. Six inches of soil, broken up finely, will be sufficient to earth up at one operation. Keep the foliage clear of the celery fly by frequent dustings of fresh soot. First and second early potatoes should at once be lifted, the desired quantity selected for seed purposes, and the others put under cover for immediate and future use. Vacant ground from which the potatoes have just been removed may be planted up with winter greens, coleworts, and late sowings of turnips. Runner beans should now be in full bearing. The pods should be kept picked regularly. Mulch both sides of the row with long litter, and water and feed the plants with farmyard liquid manure from time to time. Continue the sowing of lettuces and radishes in small quantities every 10 days or so.

FRUIT. As soon as raspberry canes have been cleared of their fruits carefully remove the protecting net on a dry day. Cut out all the old canes to more fully expose the young rods to air and sunlight. Apply to the soil around the roots a good soaking of farmyard liquid manure diluted to a safe strength—one-third of the liquid to two-thirds of water. Two-year-old plants of strawberries intended for bearing fruit next season will also be much benefited by an application of manure. Attend to the watering of young liquid strawberry plants in newly formed beds. When cherry trees have been cleared of their fruits they should be partially pruned and the foliage cleaned by means of the hose or garden engine. Guard against the mistake of allowing the roots to suffer for want of moisture. Peaches and nectarines growing against walls should be attended to regarding the tying in of young shoots, otherwise they are liable to get broken in the event of rough winds. Expose the fruits as much as possible to the sun and air, so that the true flavour of each variety will be assured. Keep the foliage clear and free from insect pests. Remove all suckers that emerge from the roots. Wall trees bearing fruit and approaching the ripening stage should be securely netted in good time as a protection against the ravages of birds. Wood-lice at this season are often the cause of much injury to the ripening fruits.

FLOWER GARDEN.—Among alpine plants in the rockery, those which have not made sufficient progress should be carefully noted with the view of increasing the stock, by inserting a batch of cuttings in a cold frame. A great deal of time can now be well spent in keeping herbaceous borders neat and attractive. Plants that have

finished flowering should have their dead flower stems and decaying leaves cut off. Stakes may also be removed. Later plants of a tall habit of growth must be securely staked in case of rough winds, which are often prevalent during the autumn. Tie up the stems from time to time as they gain in height. Abundance of water must be applied to all moisture-loving plants if the best results are to be obtained. Mulch Dahlia plants with decayed manure and feed with liquid manure at least once a week.

M. D.

Beekeeping.

JULY, so far as it has gone, has been even more adverse for bees than its predecessors about the worst on record, if not indeed the very worst for the past thirty years, is the opinion of some of our oldest bee-keepers. The best yields up to this amount to about fifteen moderate quality-finished sections in the first crate, and this is only to be met with in the best localities. Many stocks are now mid-July through the long continuance of cold weather, showing signs of economising by throwing out their drones. Although some of them have from 15 to 20 lbs. of honey in sections or supers very few have any sealed honey in the brood frames; in fact there are many large colonies perilously near the brink of starvation, while some have and are still being saved by feeding. The white clover was about ten days later than usual in arriving at the best stage for yielding nectar, and it bloomed very profusely. But, instead of the much-needed heat wave for all crops, with its accompanying honey flow from the clover, the temperature kept too low, and, with the big woolpack-looking clouds rolling up from the northern horizon, we had cold winds and cold rain flows during the most important period of the year for bees. The prospects at present look gloomy from the bee-keeping point of view, but it is to be hoped that behind the dark clouds there may be a silver lining when the blackberry, blackheads, and lime come into bloom, and especially for those situated in mountain districts, where they get the best honey flows in August and September.

There will now be a tendency, even with the most vigorous queens, to restrict the brood area. This means that from now there will be an increasing inclination to store honey in the brood frames rather than in sections or supers. It is therefore essential that crates or supers should only be given to the extent that they can be crowded with bees, and that they be snugly covered with several plies of heat-retaining material, so as to encourage the bees to store in them and to hasten the ripening and capping of the honey. Floor-board ventilators should be kept closed, unless a period of sweltering heat should set in, when it would be an advantage to open them, but on no account should they be left open on cold or chilly nights. Up to this there has only been a few days this summer on which there was any necessity to open floor ventilators, and that only in hives with insufficient entrance way.

In late districts where the autumn flow is the mainstay, bees should be fed during broken weather, so as to have them well stocked with brood and bees in anticipation of the hoped for warm spell, when the heather comes into bloom, and later on the wild scabious yields abundantly in September. In districts where ragweed is the principal or only source on which bees can forage,

unless such honey is in demand for home consumption, it would be advisable to have sections removed before it appears, as it is objectionable in appearance, aroma and flavour, though it seems to suit the bees for wintering on as well as the choicest honey.

Robbing must at all times be guarded against, and especially at the end of the season. Prevention is better than cure. Weak stocks, which are unable to defend themselves against their stronger neighbours, careless exposure of honey or syrup during a time of scarcity, careless opening of hives for manipulation when honey is scarce, and queenless stocks which have lost heart for defending their home, are the principal causes for starting the trouble. When once robbing is fairly started the looting of Sackville Street was a mild affair compared with the determination with which bees loot the stores of their weaker neighbours! There are many devices for checking robbing, providing it is detected at the start, such as narrowing the entrance with perforated zinc, laying a piece of glass against the entrance, making dark passages, &c., but there is no form of entrance to equal the Swiss metal entrance as a protection against robbing by either bees or wasps.

Queens in nuclei should now be utilised to supersede those that are due to be deposited. The nuclei may then be united, allowing for an occasional comb that has to be discarded through having too many drone cells or other cause; three good nuclei are generally sufficient to make one good stock. Change of blood is as essential in maintaining a vigorous constitution in bees as it is in stock-breeding, therefore it is most desirable that a queen from unrelated stock should be occasionally introduced. Some of the most valuable queens to be met with for this purpose are to be found in casts from skeps that may be too weak for wintering. If procured at a distance of fifteen, but preferably not less than twenty, miles, the progeny either in queens or drones have a considerable influence for good. Be careful not to attempt re-queening if there is any inclination to robbing. The Simmins' "fasting method" of introducing queens direct is in my opinion the most satisfactory, and I find that beginners invariably perform it successfully. The stock to be re-queened should be deprived of its queen early in the forenoon of the day the young queen is to be introduced after dusk. It is of the utmost importance that the stock to be re-queened should realise its queenless condition. It is equally important that the young queen should be alone and fasting for thirty minutes, and that the introduction be performed after dusk. I find the "Swan" match box a very suitable box in which to retain the queen alone for thirty minutes before introducing. Be careful not to cause any disturbance in removing the roof or coverings, and place the box with queen mouth downwards over the feed hole, or if that should be too large make a new opening. Fairview, Enniskillen. PETER BROCK.

Hints for Amateurs.

By R. M. POLLOCK.

This is the month for cuttings, and, generally speaking, what cannot be propagated by cuttings can be increased by seed. In small gardens cuttings are by far the least trouble, and give a quicker return, as they can be left in the cutting

beds until well rooted and then transplanted to their permanent positions, whereas in the case of seeds, they usually have to be raised under cover, pricked out when fit to handle, and then planted out. Most plants of which cuttings are wanted, and which do not show signs of producing suitable shoots for cuttings, can be induced to do so by cutting them back, and so forcing them to make short growths at the base. This applies to such plants as Double Rocket and many other plants of that type of growth. Pansies, Carnations, Pinks, and, towards the end of the month, shrubs may all be pricked into sandy soil in a shady border, and covered with a cap glass. Aubrietias and Alyssums may get the same treatment.

Where time, space, and patience allow it, there is no work in a garden more fascinating than growing one's own plants from seed.

Experience and practical work teaches far more than any reading or writing on the subject can ever do, but there are a few points which hold good in the case of seed sowing. The drainage in the pots or pans is a very important matter, as on it depends the consistency of the soil during the early life of the seedling. The soil, too, should in all cases be firm, so that the young roots may take a good hold in the pot. This remark does not mean that the soil is to be brick hard, but sufficiently firm to allow the water to pass slowly through, and not so loose and open that when watered the water runs away quickly down the side of the pot between it and the soil. As to covering the seeds, this should always be done with fine soil shaken on through a fine sieve or fine riddle, and in this soil a fair proportion of fine sand might be mixed, as it to some extent prevents the moss from appearing on the surface. It is a good plan when sowing very small seeds to immerse the pots filled with soil in water until thoroughly saturated, and then sow the seed. This prevents the seeds being washed out of the pot or washed to one side of the pot when watered after sowing. Where protection can be given during the winter most seed is better sown directly it is collected and cleaned, and not kept until the spring. These notes, of course, do not apply to the ordinary garden annuals, but to herbaceous plants, alpinas and many biennials.

The shoots of Dahlias will need thinning out, keeping only the strong, well-placed shoots, and removing all weak thin ones.

Earwigs will also be troublesome, and a little straw placed in the bottom of a flower pot, and the pot hung on the top of the stake, is as good a method of catching these insects as anything. A piece of newspaper placed between some of the shoots, or tied loosely round the stake and removed in the morning, will also be a good trap for them, and is less unsightly than the inverted pots, which remain all day long.

Loganberries and raspberries may have the old canes removed as soon as the fruit is gathered, and the young shoots, which are already a considerable length, tied in. This will save trouble and time in the busy and shorter days of autumn, and it is far easier to tie in the new growths while they are young. The same remark applies to the Rambler Roses, such as the well known Dorothy Perkins, White Dorothy, Dorothy Demison, Coquina, American Pillar, Excelsa, Hiawatha, Lady Gay, Minnehaha, &c. As soon as the flowers are over, all the shoots that have carried flowers this season should be removed. If the plant is strong and healthy there will be plenty of new growth to replace the old.

Fruit Crop and Fruit Crop Prospects (Ireland), 1916.

NOTE.—The reports here compiled refer to the crops and prospects as far as ascertainable in mid-July. In order to secure as much uniformity as possible in the Returns a scale of descriptive terms was agreed upon—viz., (1) very good, (2) good, (3) average, (4) below average, (5) bad. The names of the County Horticultural Instructors are starred (*).

County and Locality		Apples	Pears	Plums	Cherries	Gooseberries	Currants	Raspberries	Strawberries	Name of Correspondent	
ULSTER											
<i>Antrim</i> —County, North											
Loughgal		Very bad	Bad	Average	Bad	Good	Good	Average	Average	J. Hagan *	
County South		Bad	Bad	Very good	Good	Very good	Below av.	Good	Below av.	W. R. Spencer *	
English		Bad	Below av.	Very good	Good	Very good	Very good	Average	Average	P. Timmonn *	
Annaghmore		Bad	Bad	Good	—	Very good	Good	Average	Very good	A. Robinson	
Keshball		Bad	Bad	Bad	Bad	Very good	Good	Good	Below av.	J. J. W. Dunlop	
<i>Armagh</i> —County		Bad	Bad	Average	—	Good	Good	Very good	Good	Chas. Lamb	
The Bush		Bad	Bad	Bad	Good	Good	Good	Average	Good	B. H. Clarke *	
Dromalis		Below av.	Bad	Bad	Bad	Average	Below av.	Good	Average	D. D. M. Bartlett	
<i>Carraig</i> —Farnham		Very good	Below av.	Bad	Bad	Average	Below av.	Good	Below av.	J. Guy	
<i>Down</i> —County, North		Bad	Bad	Good	Bad	Very good	Very good	Good	Good	R. J. Pennington	
"		Below av.	Below av.	Good	Average	Good	Very good	Very good	Very good	D. W. Ballie *	
Lasbarn		Bad	Bad	Below av.	Average	Good	Very good	Very good	Very good	T. Scott *	
Moxallen		Bad	Bad	Below av.	—	Good	Below av.	Good	Good	W. Todd	
Hillsborough		Bad	Bad	Bad	Below av.	Very good	Very good	Good	Very good	J. Lytras	
<i>Fermanagh</i> —County		Bad	Average	Average	Average	Good	Good	Good	Good	T. Bradshaw	
Ballinamallard		Below av.	Bad	Bad	Bad	Good	Below av.	Good	Below av.	P. Brock *	
Tolmore		Bad	—	Average	Average	Good	Good	Average	Good	H. A. Burke	
Monymore		Bad	Below av.	Bad	—	Average	Below av.	Very good	Below av.	A. May *	
<i>Monaghan</i> —County		Below av.	Bad	Bad	Bad	Good	Good	Average	Below av.	J. A. Carmichael	
<i>Tyrone</i> —County		Below av.	Average	Good	Good	Average	Average	Good	Average	J. G. Toner *	
Sun House		Good	Below av.	Average	—	Good	Very good	Good	Very good	S. J. Magill *	
Bombur		Below av.	Good	Below av.	Below av.	Very good	Good	Good	Good	F. W. Walker	
Clogher Park		Bad	Bad	Bad	Average	Average	Good	Good	Good	W. Huddell	
				Good	—	Very good	Average	Average	Good	D. M. Lavin	
LEINSTER											
<i>Carlow</i> —County											
Rathvilly		Below av.	Average	Average	Average	Very good	Very good	Very good	Good	J. M. Keogh *	
Oak Park		Below av.	Below av.	Below av.	Below av.	Very good	Very good	Average	Below av.	W. M. Foulds	
Fenagh House		Below av.	Below av.	Good	—	Very good	Very good	Very good	Very good	F. Gregory	
Milfont		Good	Good	Good	Good	Very good	Very good	Average	Good	S. E. Colvin	
<i>Dublin</i> —County											
Cabinteely		Average	Below av.	Average	Below av.	Very good	Very good	Good	Very good	J. Ryan *	
Chapelizod		Average	Average	Average	Below av.	Average	Very good	Average	Average	P. J. Gray *	
Lattredstown		Average	Below av.	Below av.	Below av.	Good	Good	Average	Average	W. Usher	
Glacuvine		Below av.	Below av.	Below av.	Good	Average	Good	Average	Below av.	E. Mackey	
Mt. Arvelle		Bad	Bad	Good	Good	Good	Good	Good	Bad	J. Dunt	
<i>Kildare</i> —County											
Athy		Below av.	Below av.	Below av.	Below av.	Very good	Very good	Very good	Very good	J. Semington	
Carton		Below av.	Below av.	Below av.	Below av.	Average	Very good	Very good	Very good	T. Masterson	
<i>Kilkenny</i> —County											
Bessborough		Average	Below av.	Below av.	Good	Very good	Very good	Very good	Very good	W. Tyndall *	
Gowran Castle		Below av.	Below av.	Below av.	Below av.	Good	Average	Average	—	A. B. Phewman	
Piltown		Below av.	Below av.	Below av.	Below av.	Good	Very good	Very good	Very good	A. Black	
Flood Hall		Average	Below av.	Good	Average	Very good	Very good	Very good	Good	T. Rea *	
<i>Wick</i> —County											
St. Peter		Below av.	Below av.	Below av.	Below av.	Very good	Very good	Very good	Good	T. E. Tomlin	
		Below av.	Below av.	Below av.	Below av.	Very good	Very good	Very good	Good	G. Roche	
		Below av.	Below av.	Below av.	Average	Very good	Average	Below av.	Bad	B. Dalton	
		Below av.	Below av.	Below av.	Good	Very good	Very good	Very good	Very good	J. Stark	
		Below av.	Below av.	Below av.	Good	Good	Good	Average	Average	E. Clarke *	
		Below av.	Below av.	Below av.	Average	Good	Average	Average	Good	E. McDowell	

Fruit Crop, Ireland, 1916.

It is a few years since the fruit growers in the North of Ireland have had a full crop of apples. Only an odd orchard here and there would be carrying anything like a crop. The growers were living in hopes of a heavy crop this year, as the trees ripened their wood well last year, and formed an extra large number of fruit buds. This resulted in a heavy flowering, but very few of the flowers set fruit. The season's weather has been very disappointing, that of January being so very mild that it was thought the spring would be very early. From February, however, to mid-April the weather was very cold, wet, and with very little sunshine. This checked the growth to such an extent that by the end of May the season was about two weeks later than the average. Much of that leeway has since been made up. The apples are, in general, a very poor crop, and in most orchards they are swelling very slowly. It is many years since the prospects were so bad in the commercial districts. Here and there is to be found a good crop, but in the great majority of cases there is only a sprinkling, and the large growers of Bramley Seedling around Armagh have very poor crops. The crops are better in the South and West. We had no hot, dry days and frosty nights when the apples were flowering this season, but the cold and rain prevented the proper fertilising of the flowers, and of most of the flowers which did set the fruits dropped immediately after forming. Bramley Seedling, Lane's Prince Albert, Lord Derby, Royal Jubilee, Beauty of Bath, James Grievé, and Grenadier are in general bearing better than other varieties, and those with few fruits are Bismarck, Allington, Gascoyne's Scarlet and Blenheim Orange. This is a disastrous year on pears, as not one of the hundred correspondents records a very good crop. They are almost all either bad or below the average. The trees in the open are practically bare of fruits; those on walls are bearing a few fruits.

PLUMS are poor in general, the only one bearing a good crop being Victoria. In an odd plantation the Czar and Rivers' Early Prolific are bearing well, but of the older orchard plums the fruits are scarce. The trees flowered extra well, but few of the fruits set. Cherries are much below the average. Where sheltered by a wall the early varieties bore a few fruits, but those in the open are poor in general.

GOOSEBERRIES are a very heavy crop almost everywhere, and the fruit is of excellent quality, being much above the average in size and very good flavour.

CURRENTS are a very good crop in general, and the fruit is of good size. From what I have seen Victoria is bearing more fruit than Boskoop Giant, and the fruits have ripened well in most cases.

RASPBERRIES are a good crop, and have ripened up beyond expectations, the good weather of late being very beneficial. They flowered late this year, and few of the fruits were injured by frost.

STRAWBERRIES promised very well and set well, but owing to the sunless weather very many of the early fruits were ruined: the latter half of the crop was gathered under better conditions.

Insects on the whole have not been so injurious as in past years. The caterpillars of the winter

moth have done most harm to the apple by eating the young leaves and flower buds in the early spring.

Aphis have caused very little trouble except on a few apples, currants and cherries.

Sawfly on gooseberries and magpie moths have been reported by very few correspondents. Codlin and ermine moth were not so common as usual.

Of fungoid pests there has been an increase in their ravages, both in quantity and intensity.

Apple and pear scab are very bad in many of the large commercial plantations and doing very much damage. So far no cure has been found.

Canker is also very prevalent on apple and pear trees.

American Mildew on gooseberries is reported as doing much damage in a number of counties, and silverleaf on the plum and apple is spreading.

In general, large fruit trees are bearing poor crops, and bush fruits are bearing good crops.

W. S. IRVING.

Trial of Winter Fruiting Tomatoes at Wisley.

THE Royal Horticultural Society will carry out a Trial of Winter Fruiting Tomatoes at Wisley during the ensuing season. Seeds for trial (1 packet of each variety) should be sent so as to reach the Director, R. H. S. Gardens, Wisley, Ripley, Surrey, from whom the necessary entry forms (one for each variety) may be obtained on or before Tuesday, August 15th, 1916.

Annuals in Pots.

THE cultivation of annuals in pots is worthy of attention by all gardeners, but especially by amateurs with limited accommodation. Many a suburban gardener can boast a small greenhouse, though possessed of but little of a garden, attached to the dwellinghouse.

In keeping the greenhouse gay annuals may play an important part, and the ease with which many of them can be grown should be an advantage to the man with limited spare time and no space for growing on batches of bulkier plants.

Among the best for this purpose is *Statice Suworowii*, a very pretty annual often used in the adornment of flower borders in summer.

It is often recommended to sow the seeds in September, but this is unnecessary, entailing careful attention through the winter months. Seeds sown in February in the greenhouse will produce handsome flowering plants in July, thus the season during which they require attention is considerably shortened.

The seeds may be sown in a pot or pan, using a compost of light sandy soil. Cover lightly and place in the greenhouse, or a cold frame will do if house accommodation is limited. Water thoroughly with a fine rose-can, and germination will take place in a week or two. When large enough the young plants may be pricked out in a box or pan of sandy soil and grown on in the frame until they have formed rosettes of leaves three or four inches across, when they should be potted up singly into six-inch pots, using a slightly rougher compost. Water well on potting, and replace them in the frame. When the flower spikes begin to push up remove to the greenhouse, when handsome spikes of pink flowers will be produced, often reaching a height of three feet above the pots.

PLANTSMAN

Sweet Pea Notes for August.

By W. BARRETT, Ballyheigue Castle, Co. Kerry.

I DO not know how Sweet Pea growers in other parts of Ireland are progressing with that beautiful "Queen of Annuals." I can only state that, as far as I am aware, growers—amateur and professional—in Kerry are very quiet re their Sweet Peas, and are simply growing for decorative purposes. We have had heavy rains here and, on the whole, very cold weather, consequently Peas were very slow in growth and late in flowering. Strong, sappy growths are very much in evidence. But if we are lucky to get

plenty of sunshine the above will be reduced, all to the advantage of the blooms and stems, especially where the ground has been liberally manured and well prepared. But, of course, where the latter has not been done very dry weather means small flowers, short stems, &c. I would just like to mention a few varieties that do particularly well here in our rather light soil, free from disease of any kind, and always give satisfaction. One of our best is that fine old variety John Inghman. It is a particularly hardy Pea. Others that are equally good for decorative purposes are Constance Oliver, W. J. Unwin, Mrs. C. W. Breadmore, King Edward Spencer, and Crimson Giant; the latter has wonderful size of bloom. King White is an extraordinary large robust Pea, as too is Hercules a good one. Marks Tey, Illuminator, Clara Curtis, R. F. Felton, Elsie

Herbert, Lavender, George Herbert, Mrs. E. Cowdy, Mrs. Cuthbertson, and that beautiful variety Mrs. Harcastle Sykes, also Prince George and Barbara, both of the latter when well done are hard to beat for exhibition. The novelties, I am sorry to say, I am not acquainted with this year, and I suppose a great many lovers of this delightful flower have the same story to tell, and it is a pity, for there are few things in the horticultural world so interesting as proving the merit of novelties in Sweet Peas. Some of the varieties I have just named are, I think, still in the foremost rank in our shows. In dry weather do not neglect sufficient water; if possible keep them growing up the stakes by attending regularly to tying, &c.; give occasional doses of liquid and artificial manures when necessary; it always has great effect as a "pick up," as we term it, for the plants; put new life into them, &c. Keep old stems cut off; do not leave any seed pods to fill and ripen,

and you can depend upon it that plants with nice, fresh, well-coloured blooms on fine stems will be the result. And what a source of delight they are to employer, visitor and grower when one compares them with the wretched little specimens so poor and uncared for, one so often sees even in good gardens. Of course times are changed for the past couple of years, and many have not the time to devote to their gardens. But, with a little effort, it is wonderful what can be done, as the old proverb says: "Where there's a will there's a way," and it's very true. Let us look forward to the near future when this awful war will be over and won by our gallant Allies, and that many of our Sweet Pea

growers will be amongst us again, when we will once more see over beautiful "Queen of Annuals" better shown and grown than ever before in all our flower shows and gardens.



Photo latj

PHLOX RHEINGAU.

[S. Pösch.]

Phlox Rheingau.

THIS is a remarkably fine variety introduced to gardens some years ago, of great vigour, as the illustration shows. It is admirably adapted for the middle of a herbaceous border or for a bed. The flowers are large, of fine substance, and pure white when fully open, although the buds are slightly coloured. The specimen illustrated is an instance of the value of thinning out the shoots when they are a few inches high in spring. The remaining growths grow with increased vigour and produce enormous heads of flowers, vastly superior to the small

weak head produced by an unthinned plant. Few hardy plants make a more beautiful display in early autumn than the varieties of Phlox decussata, and this season they are very promising, as no plants more thoroughly enjoy cool showery weather.

GROWER.

British Columbian Timber Industry.

IMPROVING PROSPECTS.

ACCORDING to a report on the Cranbrook forest district, British Columbia, it is estimated that the timber cut for 1916 will be in the neighbourhood of from 150,000,000 to 160,000,000 feet. In 1913, which is the year in which the largest cut was made, it amounted to only 118,000,000 feet. Practically every mill is running or will be running by the summer. Optimism concerning the timber industry is general. —*Canadian News Items.*

The Arboretum.

ESCALLONIAS during the first half of July were remarkably floriferous and showy. All come from South American countries—Chili, Patagonia, Ecuador, &c.—and seem to like our climate, and particularly a showery season.

Strange to say, *E. Philippiana*, a Valdivian species, which thrives very well as far north as Edinburgh, refuses to live here; perhaps it does not like lime in the soil, although I have never heard anything to that effect.

The most beautiful of all, I think, is *E. laugleyensis*, a lovely hybrid of *E. Philippiana* × *E. punctata*. It forms a graceful free bush when planted in the open, the branches wreathed with clusters of lovely carmine-rose flowers, and rarely fails to give a good display. It also makes a charming shrub for a wall, and requires little attention in the way of pruning further than a thinning out of the branches after flowering should they have become unduly crowded.

A somewhat similar hybrid raised in the Edinburgh Botanic Gardens is named *E. Edinensis*, but in this case the flowers are much larger and paler in colour, and the plant is equally floriferous. They are two of the most beautiful shrubs in the garden in July. *E. macrantha*, which flowers much earlier, but continues for a long time, is a more leafy shrub, and forms a good screen near the sea. It is evergreen in mild localities, but suffers here from frost in winter, as do most of the others, but it is only to the extent of losing part of the foliage, which is soon replaced in spring.

Philadelphuses are now coming into good flower, and seem to enjoy the showery weather. Many hybrids now surpass most of the species for purely decorative purposes, but one species at least is very beautiful, and that is the new Chinese *P. brachybotrys purpurascens*. It is the earliest to flower here, and was opening in the end of June. The flowers are of medium size, very freely produced on branches of the previous year, the petals pure white with a purplish tinge to the calyx, which enhances the beauty of the flowers.

P. purpureo-maculatus, after languishing for some years, is this season flourishing, and has grown into a nice bush bearing freely its pretty flowers, with white petals, each with a purplish-rose blotch at the base. It too is a hybrid raised from the tender *P. Coulteri* crossed with a *P. microphylla* hybrid, according to Mr. Bean. It is perhaps a little tender, but harder than *P. Coulteri*, which does no good in the open here, being cut to the ground even in a mild winter. It is on this account now being tried against a sunny wall.

Many of Lemoine's hybrids are extremely handsome shrubs, notably *Lemoinei erectus* and others, such as *Avalanche*, *Manteau d' Hermine*, *Rosace*, *Bouquet Blanc* and *Mer de Glace*, are very beautiful, though I am not sure that the double forms are any more to be preferred than the single. The majority of leguminous trees and shrubs are over for a time, but surely the Spanish Broom, *Spartium junceum*, is one of the most beautiful and free flowering shrubs we have, continuing in beauty well into autumn. Tall specimens are excellent for shrubberies, looking

particularly well among evergreens and brightening up odd corners delightfully. It is inclined to get leggy if not well cut back when young, and in this state is very easily blown over, as the roots do not penetrate deeply. There is a dwarf form, however, called *S. j. nanum*, which seems more inclined to branch low down and remain bushy.

A little known shrub, which has been flowering lately, is *Diostea juncea*, a member of the Verbenaceae family. It makes quite a tall shrub, or nearly a small tree, in time, and it is quite interesting in its green branches bearing quite small leaves. The flowers are almost white, and when produced freely have rather a pretty effect. Like *Spartium junceum*, it should be well cut back when young, as it is so inclined to become bare at the base. It is a native of Chili and the Argentine, and is generally quite hardy.

Those who like uncommon shrubs will be interested in *Lonicera Giraldui*, a rather quaint Honeysuckle flowering in July. It is a turner soon forming a mass of growths. The leaves are hairy, the dark reddish-brown flowers are borne in clusters and are followed by purple fruits in autumn; good seeds are usually produced from which young plants can be raised. The plant is quite hardy on a sunny wall, but I have no experience of it in the open.

Lonicera Delavayi is a more attractive species, flowering this year very freely. The leaves are hairy on the under surface, the young branches dark reddish-brown; the flowers, which are sweetly scented, are bright red in the bud stage, but open yellow. Like *L. Giraldui*, it is a native of China, both having been introduced to cultivation by Mr. Maurice de Vilmorin, the famous French horticulturist.

A very pretty shrub for a wall or sheltered shrubbery is *Helichrysum rosmarinifolium*, better known, perhaps, as *Ozothamnus*, an evergreen with narrow dark green leaves; it is extremely pretty when furnished with its corymbs of white flowers. Easily raised from cuttings, it should be a useful shrub for summer flowering in the milder parts of Ireland.

Clematis montana var. Wilsoni is the correct name of the plant we have hitherto grown as *C. repens*. It is a most valuable variety, flowering very profusely from July onwards. The flowers are large and pure white, making a very pretty display and forming a fine succession to the earlier forms of *montana*, all of which are beautiful.

Those who wish to propagate shrubs will find August a very good month to put in cuttings. Short, half-ripened growths of very many shrubs, taken off with a "heel" of old wood and dibbled into sandy soil in a frame or under a handlight, generally root freely if kept close and shaded. It is not possible to say exactly when shoots are fit for cuttings, but a large number of shrubs are fit for propagating early in August.

Heaths are usually about right at this time, and should be taken about two inches or even less in length, using very sandy peat. Bottom heat hastens the formation of roots, but is not essential, as thousands may be rooted under handlights on outdoor beds, provided a suitable compost has been made up. Avoid over-watering cuttings of all kinds, but especially Heaths. One good soaking when they are put in should serve till roots are formed if shading is properly attended to.

B., Dublin,

The Fuchsia.

By A. F. PEARSON.

As a summer flowering plant for a cool greenhouse few subjects equal it in its easy culture, freedom from diseases and insect pests, and its floriferous habit.

Introduced from South America at the end of the eighteenth century and named after a German botanist, Fuchs, it possesses a hardy constitution. Some of the hardy varieties we

I am not sure if we have added to the cultural knowledge which the gardeners of those days possessed; large specimens, rarely seen now, were common things to wonder at then.

August is probably the best month of the year to begin propagating for the production of a nice plant the following year; being easily trained to any form desired, the grower may decide to clothe a pillar or cover a roof, train as a pyramid bush or standard, all of which shapes it will readily grow into by careful pinching of the growths necessary.



Photo by]

CORNUS CONTROVERSA AT ALDENHAM
THE HON. VICARY GIBBS TO THE RIGHT
(See Notes in July issue.)

[R. A. Malby.

know as hedge plants, the *var.* *Riccartoni*, a Scottish produced hybrid, being a favourite for outdoor screens and shelters on the coast of Ireland. So long ago as 1854 the Knight of Kerry planted one in his garden at Valencia Island, Co. Kerry; in 1872 it is recorded as having attained a circumference of 121½ feet at the extreme of the branches. But the finer hybrids we know as greenhouse plants are more likely to give pleasure to the amateur who likes a well-stocked house of nice plants. Hybridising appears to have received a good deal of attention in the seventies of last century, judging from the trials of new varieties engaged in by the Royal Horticultural Society at its Chiswick Garden. The variety *Rose of Castile*, familiar to even young gardeners, figures in those of that period.

The best cutting to choose is one from three to four inches long, not too soft in texture. Cut clean below the joint, removing the twoleaves; insert several cuttings round the edge of a 3-inch pot in a mixture of loam, leaf-soil and silver sand; place in a propagating frame or ordinary box covered with glass; water once and keep shaded till rooting takes place, after which air may be gradually given until the plants are capable of standing full exposure; pot singly into a similar mixture, using 2 or 3-inch pots; syringe freely, and shade from sun until they are well established. Keep growing on a shelf near roof-glass of a cool house, when they will soon grow into plants capable of standing the winter in a cool house. Some growers may prefer to repot in September and grow on in heat, but a small pot is easily kept

in winter, and most people find their space small enough at that season: on that account I recommend keeping the plants to a 3 or 4-inch pot through the winter months, keeping the soil on the dry side. When the growths begin to break in spring give every encouragement by syringing on sunny days with tepid water, shake the young plants out of their pots and repot into a suitable sized pot in a mixture of two parts sound loam to one of leaf-soil, with some dried cow dung chopped fine, and silver sand to keep the whole open. With careful watering the plants ought to flourish, and as soon as the pots are filled with roots, pot on into 5 to 6-inch sized pots, adding to the above mixture a pinch of bone-meal or Thompson's vine and plant manure, about a 1-inch potful to the barrow load of compost. The process of giving greater pot room will go on as the plants require it, and by the end of summer they will have become great plants in 7 to 9-inch pots.

TRAINING.—If standards are wanted, a strong growing shoot must be selected and all side growths kept pinched out at the axil from which they spring, so as to keep the stem clean to the height desired; pinch at this point several joints above where head is wanted, after which the side growths will break; encourage them to grow and train on circles of wire until a large bushy head is attained. Pyramids are got by pinching the growths and regulating the shape of plants. Three wires may be tied to the point of a central stake and drawn down to another running round the under rim of the pot: this forms an excellent foundation for training a pyramid. Then there is the fan-shaped plant, the chandelier form, hanging from the roof of a house, and, indeed, any form the grower may wish. The *Fuchsia* is indeed an accommodating plant.

All this growing can be done, from the first week of June till the flowering period, out of doors in the shade of a north wall or other not over sunny spot. Liquid manure must be freely given while the plant is growing, all flowers kept picked off until wanted for show, allowing a space of six weeks for the flowers to form. By adopting this method the plant will be simply smothered in flower at any given period, and will remain so for the autumn months. Large as the plants may be—and well grown ones may be six feet high and proportionally great in circumference—they can be wintered very easily and made do duty as large specimens the following year: a frost-proof shed is all that is needed, the plant will need no water during winter, and to prove its adaptable nature I have in my mind a cottager who showed year after year at certain Scottish shows a remarkable *Fuchsia* and *Petunia* both of which were wintered underneath his bed.

The insect pests are invariably greenfly and thrips, both of which are easily destroyed by syringing with quassia and soap suds or other prepared insecticide.

Some of the best varieties are:—Singles—Rose of Castile, improved, Comtesse of Aberdeen, Hector, Ida, Royal Purple, Fairy, Earl of Beaconsfield, Yuletide, Warrior, Murill; while a few of the best doubles are—Glenroy, Nautilus, Tiber, Artus, Phenomenal. I refrain from naming more, but those mentioned here will permit any prospective grower to select a few for trial. Do not grow more than can be properly handled: a few plants well grown are worth more than many starvings.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener and Forester to Lord Caraw, Castle Boro', Clonroche, Co. Wexford.

The dry weather in July in the south has made watering necessary in many gardens. With August we must prepare for the next season's supply of tender bedding plants. Where *Geraniums* are used, cuttings should be inserted in boxes containing soil of a gritty nature. We use old potting soil and surface with clean sharp sand. A useful size for these propagating boxes is 22 inches long, 12 inches wide, $1\frac{1}{2}$ inches deep; a few crocks placed over the holes in the bottom of the box to ensure a free drainage during the dull days of winter; cover these with a few of the largest pieces in the soil; it is best to pass all the soil through a $\frac{1}{2}$ -inch riddle, use the coarse parts for the bottoms of the boxes, and fill in the fine soil to an inch of the top of the boxes. Press moderately firm and cover the surface with sharp sand; dibble in the cuttings 3 inches apart. The box referred to above takes thirty-five cuttings; make very sure that the base of the cutting rests firmly at the bottom of the hole or the cutting will rot instead of making roots. If the weather be dry and the cuttings hard, they can be made and put in at once. If wet weather prevails, let the cuttings be made a day previous to putting them in the boxes, and spread out thinly in a dry airy shed, so that the base of the cutting may get dried; although the leaves may wilt a little, the cuttings will root better, and a higher percentage of plants obtained. It is usual to allow 10 per cent. more cuttings than the plants required for use; this allows a margin for failures and casualties during the winter.

Cuttings of named *Begonias* used for bedding may also be taken early in the month to increase the stock; these should be put singly in tiny pots and placed in a box covered with glass until the cutting shows signs of being able to hold its own. This box containing *Begonia* cuttings is best kept in a cool airy greenhouse, and on a moist bottom; spray over once a day until they are rooted during bright days; when the roots are formed the plants may be grown on as long as possible in the greenhouse, where they will form tiny corns about the size of a Marrowfat pea, and these in their turn will make nice plants next year. *Heliotrope* must be rooted in pots, and are best rooted on a hot bed. *Iresine*, *Verbenas* of sorts, and most of the tenderest plants are also best rooted in heat. The *Verbenas*, however, must be removed to a light airy place in the greenhouse immediately they are rooted and grown as hardy as possible before the dull days of winter come, or mildew will be rampant. Cuttings of choice varieties of the smaller *Lobelias* for edging may be put in for stock and a few plants potted up also. The light growths of *Lecophyton Brownii* must be rooted in heat, and the softest tops only inserted; these root from the sides of the cutting and not the base, as most cuttings do. Cuttings of *Calceolaria Amplexicaulis* should be got in by the end of the month: the shrubby varieties should wait until the end of September. The sooner cuttings of *Violas* and *Pentstemons* are got in the better, although September is time

enough. Cuttings of *Pelargonium Clorinda* for vase work or bedding purposes should be inserted in pots, grown on in a greenhouse and kept growing single in a 5-inch pots all the winter. This enables them to be put in a 7-inch pot in March, and fine serviceable plants are thus obtained.

Seeds of *Cyclamen* should be sown at once, and grown on all the winter in a warm greenhouse to make good flowering plants for next season. At the end of the month annuals such as *Clarkias*, &c., may be sown in pots for spring flowering in the greenhouse, where they make fine decorative plants.

Cuttings of the Cape *Pelargoniums* should, if not already done, be inserted and grown on in a frame or cold greenhouse for next year's plants. Every encouragement should be given them to form roots, so that they can winter singly in 3-inch pots, and be ready for their flowering pots, 5-inch, early next March.

Malmaison *Carnation* cuttings will be rooted and ready for placing in 4-inch pots by the end of the month. Layers of the border varieties must be watered in the evening of hot days so that they may have plenty of roots when they are transplanted later on: spring bedding plants must also be freely watered during dry weather. Bulbs of *Freesias* should be potted every fortnight to have these lovely sweet flowers over as long a season as possible. Where other bulbs are forced for Christmas, Roman *Hyacinths*, *Narcissus*, *Golden Spur* and *Scarlet Duc Van Thol Tulips* should be potted as soon as the bulbs can be got. Place the pots in a cold frame and cover with coal ashes to the depth of 2 inches until roots are being freely made, when the pots should be shaken free from the ashes and top growth encouraged.

Small cuttings from the rock garden will require to be put in single small pots or a number in a pan as needed during this month. Many of the choice shrubs which are somewhat tender may be increased by cuttings taken during this month. Cuttings of the *Rambler Roses* rooted on an old spent hot bed make good plants next season and save a year's growth.

Make notes of failures on herbaceous borders and of changes intended during the planting season.

Roses will repay generous treatment and copious waterings during dry weather by the amount of blooms obtained during the autumn.

Last year's seedlings of *Cyclamen* should be growing freely, and little feeding with soot water very much diluted with water and very weak, and a little weak manure water. Air should be freely admitted, and the leaves should be sturdy, the leave stalk short and thick: this means plenty of flowers during the dull days of winter.

Tree *Carnations*, which have been stood on an ash bottom outdoors since the middle of June, must be placed in the greenhouse by the middle of the month. A cool ash bottom, or loose shell, or pea gravel is necessary to stand them on. Nothing is so bad as a trellis stage.

After housing the plants they should have a spray night and morning until the weather becomes dull or cloudy; these may be fed with a suitable fertilizer once a fortnight until October, when once in three weeks will be sufficient for the winter. *Mignonette* may be sown in 6-inch pots for early spring flowering.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

APPLES AND PEARS.—The summer pruning of these should be completed as soon as possible, so that the full benefit of August sunshine will be obtained both for the current year's crop and for next season's fruit buds. Do not neglect summer pruning trees that are carrying no fruit this year, as it is very important to admit air and sunshine to the fruit buds now forming for next season. Early varieties will soon be ripening their fruits, and as these will not keep in good condition for any length of time, it is better to go over the trees at frequent intervals, picking a few of the most forward at a time: by this means the season for these fruits will be greatly prolonged. Early apples, and even more especially early pears, soon go mealy and soft if kept many days after they are fit to eat. The flavour of the latter is improved by picking a few days before ripe, and allowing them to mature in a cool fruit room.

RASPBERRIES.—The old fruiting canes should be cut out as soon as the crop is finished, and if more young canes have been left than are necessary to furnish the plantation next season, these can be thinned again at the same time. This will ensure the young canes being well ripened and their buds well developed. They will also be less likely to be injured by hard frost in winter, which often causes many gaps in plantations where the young canes are allowed to grow up in a crowded state. Clear the plantations of weeds afterwards; these and the old canes can be burnt together. The old growths of *Loganberries* also should be removed after the crop has been gathered, and the young growths trained in their places. These are becoming increasingly popular, and are unfailing croppers.

STRAWBERRIES.—As beds go out of bearing they should be cleaned of weeds, dead leaves, and superfluous runners. If sufficient of the latter have not yet been layered, no time should be lost in securing these, by one or other of the methods advised last month. At the same time ground should be prepared for new plantations, so that no delay occurs when they are fit to plant, as early planted layers, by becoming established before winter sets in, have a much better chance of succeeding, and can be allowed to fruit next season, which fruits will be some days earlier in ripening than those on older plants, and will command the high prices which rule just before the main crop comes in.

WALL FRUIT TREES.—The fruits on peaches and nectarines will require exposing to the sun by tying back any overhanging leaves. The young growths should be neatly tied in, and all secondary growths proceeding from these should be removed altogether. After the fruit is gathered the old fruiting wood can be cut out, removing at the same time all very gross shoots, and retaining just sufficient of the medium-sized growths to furnish the wall space with fruiting wood for next season. Do not neglect watering these trees when necessary, after the fruit is gathered, and during hot weather frequent syringing with clear soft water in the evening is of great benefit in keeping the foliage clean and healthy. Plum trees of various kinds will be ripening their fruits, and should be netted as soon as necessary.

The season of such a reliable kind as Victoria can be greatly prolonged by having trees in various aspects. This variety succeeds well on a wall facing north, and fine late fruits can be obtained in such a position. Six good culinary pums for succession are Rivers' Early Prolific, Czar, Belgian Purple, Diamond, Victoria, and Monarch, whilst amongst dessert varieties, Oullin's Golden Gage, Purple Gage, Jefferson, Kirke's Blue, Comte d'Altham's Gage and Late Orange will give satisfaction.

FIGS.—The current year's growth should be well thinned out, and those left tied in between the fruiting wood, at the same time exposing the fruit on the latter to the sun. Copious waterings during dry weather and plenty of sun are essential in developing this fruit to perfection of size and flavour. All young fruits on the new growths of outdoor figs that are advanced enough to be recognised as figs, at this season, should be removed. They are too forward to survive the winter, and will all drop off next spring, whereas if taken off now, one and sometimes two new embryos will form at the base where they are taken off, and these will develop in due course next summer. Wasps are very destructive of figs, and means should be taken to entrap them, by hanging bottles containing a mixture of beer and sugar amongst the branches, and all nests that can be found should be destroyed at once.

GENERAL REMARKS.—This is a good time to thoroughly cleanse the fruit room if not already done. The shelves should be thoroughly scrubbed with warm water and soft soap, and the walls linewashed, afterwards leaving all windows and ventilators open for a few days so as to afford a good airing.

Up to now the season as regards fruit has been a disappointing one. The early promise of trees crowded with blossom has, owing to bad weather conditions, not been borne out. Apple trees are carrying a fair crop in some places, and the trees are clean and growing well, but as I mentioned in April was likely to be the case, applesucker was very destructive on orchard trees. A good crop of strawberries was almost ruined by a very wet picking season, the fruit being hardly dry once for over a fortnight when the main crop was ripe. Plums and cherries dropped badly owing to imperfect fertilisation. The one bright spot is the currant crop, which is unusually good, both red and black. It is sincerely to be hoped that a fine autumn will enable the later fruits to mature, and be harvested, under better conditions than those hitherto obtaining this season.

The Vegetable Garden.

By J. B. Pow, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

ONIONS.—The autumn sowing of onions should be made about the third week in August. Ground where the early crop has been removed will be found suitable; no fresh manure should be added unless the ground is very poor. If sown on too rich a soil the plants grow too quickly and become tender, and are unable to withstand the winter. Prepare the ground in a somewhat similar manner as for spring-sown onions, but the seed drills should be made a little deeper to guard against frost lifting out the plants in winter. When onions are sown in autumn for the purpose

of transplanting in spring, a bed sown broadcast will be found sufficient, and will take up less space. About the end of the month spring-sown onions should be ready to lay over. By laying the tops over induces the bulbs to swell, and matures the crop sooner. Potato onions and shallots should now be lifted, thoroughly dried, and stored in a cool, dry shed or loft.

POTATOES.—During the last week in August all early and second early potatoes should be lifted. Select tubers of a medium size for seed, and store the remainder in any convenient place for consumption. Tubers intended for seed may be left in the sun till they become green throughout, and then stored in a dry shed for the winter.

TURNIPS.—Make a further sowing of turnips. A sowing may be made during the first week of the month, and another about the third week. The use of sulphate of ammonia between the rows and a free use of the hoe will induce a quicker growth, and a sweeter root will be obtained.

CABBAGE.—A sowing of cabbage should be made about the middle of the month. Flower of Spring, Offenham and Early Rainham are all good varieties for autumn sowing. Vacant ground may still be planted with cabbage for late winter use.

CALIFLOWER.—Early cauliflower are now turning in fast. Should the crop come in too rapidly, cut the heads and remove them to a cool cellar, where they will keep for a few days. Tie the foliage over those not quite ready to exclude the sun and light from the curd.

ASPARAGUS.—Support the growths before they get damaged by winds. Keep the beds free from weeds and give a dressing of nitrate of soda or salt.

BEET.—Early Globe Beet should now be lifted. Twist off the leaves and store the roots in a cool shed; a layer of dry soil or ashes should be placed between the beet.

SALADS.—Continue to sow batches of salads every ten days. After the middle of the month hardy varieties of lettuce should be sown. Hammersmith, Hick's Hardy and Winter White are all good varieties for autumn sowing.

SPINACH.—Sow winter spinach in drills 15 inches apart; thin the plants quickly to prevent crowding.

Silver Thyme.

This is one of the prettiest variegated plant known to the writer. Botanically called *Thymus serpyllum citriodorus argenteus*, it is more often alluded to by the common name. The tiny green leaves, margined with white, are densely produced on the branches, creating a very pretty effect. The beauty of the plant is, however, at its maximum when the short spikes of pink flowers are freely borne at the ends of the branches. The silvery appearance of the leaves surmounted by pink flowers, is very effective, and forms a charming contrast to masses of blue Campanulas on the rockery.

It is also a good border plant in sandy soil, and makes a delightful edging to a flower bed. Cuttings root freely in August and September, and to keep the plants compact and healthy they should be cut back as they go out of flower in July.

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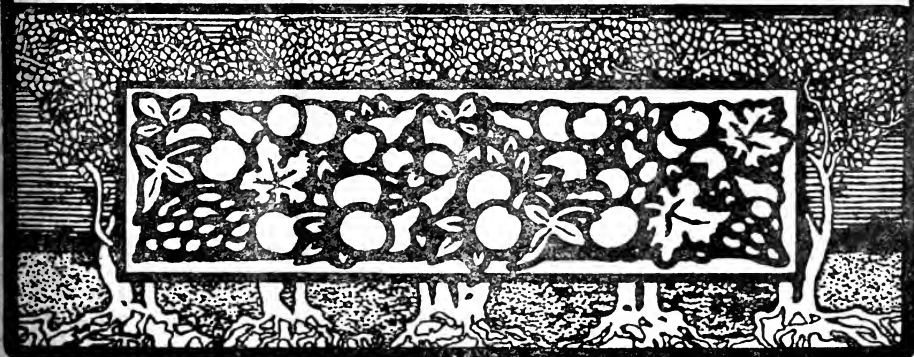
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Irish Gardening

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ARBORICULTURE IN IRELAND

EDITOR—J. W. BESANT.

Notes on Shrubs at Rostrevor House.

THERE are a few shrubs in flower at present in the grounds of Rostrevor House, and it may be of interest to some readers of IRISH GARDENING to know that they are growing out of doors and seem to be hardy ; many of them have not even got the protection which a wall affords, but all, of course, are placed in sheltered positions. During the past few years many plants supposed to be tender have been tried in the open in favoured districts, and generally speaking the results have not been unsatisfactory, though many sad disappointments too often occur. It is to be hoped that these experiments will be continued ; and it will probably be found that many handsome and desirable shrubs are harder than has hitherto been thought to be the case. The list now given is by no means complete of the half-hardy plants growing here, but it may serve to show that the attempt to acclimatise them is an interesting and useful occupation.

Prostanthera lasiantha, a native of Australia, is now some 13 feet high, and is a sheet of bloom. It is a handsome evergreen

with sweet-smelling leaves, flowers, in closely packed clusters, white, each the third of an inch across, with purple-marked throat. A branchlet is sent herewith ; it was got in 1907 from Messrs. Gauntlett, and was at first planted against a south wall, but it grew so vigorously that it was soon

transplanted to a place under the shelter of some large laurels, most of which have now been cut away, and those that remain serve to screen it from cold winds. Near by there are some *Acacias* of which *A. calamifolia* seems to be always in bloom : a branchlet herewith. *Senecio Hectori* is some 7 feet high, with a spread of nearly 9 feet, and has flowered here for the first time this year : the large bunches of daisies which it produces, each bloom about an



SENECIO HECTORI

From a plant flowering at Rostrevor House.

inch wide, contrast well with the broad light green foliage, and give the plant a very pleasing appearance ; the leaves are also somewhat uncommon, being provided at the base of each with many leaflets that add to the peculiarity of the species : branchlets herewith. Belonging to the same natural order, there are many *Olearias* in bloom, and none are more beautiful

than *O. Chathamica* and *O. semidentata*, which have large flowers, produced singly and not in corymbs, light mauve in colour with dark centres, and unlike the leaf and inflorescence of the more common species such as *O. argophylla*, *O. macrodonta*, *O. nitida*, &c. *O. insignis*, too, is a handsome species: it does well here, and flowered last year, but not this season. A small plant of *Pittosporum heterophyllum* has also flowered for the first time this year: a branchlet herewith. It was raised from seed kindly sent from La Mortola. The bloom is yellow in colour, paler than that of *P. eugenioides* and of *P. pauciflorum var. brevicalyx*, and it may be doubted whether it will be as showy as they are, but as it seems to be very floriferous we cannot determine this till it becomes larger. There is a specimen of *P. patulum* here now nearly 11 feet high, with very curious small linear black-purple leaves, but which has not yet flowered. *Hypericum cernuum*, coming from the Himalayas, grows well in shelter and seems hardy: branchlet herewith. It can hardly compare for depth of colour with *H. triflorum* (as it is usually called), which blooms later in the season, and is probably the best of the genus; but its pale yellow flower against the light green foliage has a charm of its own very difficult to match. Few summer-blooming shrubs surpass *Leptospermum scoparium* and its varieties in effect, in beauty, and in colour: the type is white, and the variety *Nicholii* is a deep and a brilliant red, while in *L. Boscawenii*, a hybrid that originated in Cornwall, the blossom is somewhat larger, and the white is suffused at the base of each petal with rosy pink. A plant of *L. Nicholii* at Rostrevor is some 10 feet high, and it is usually a gorgeous sight at the end of June and July, being literally bathed in crimson. Owing to the inclemency of the season, it does not show the same wealth of bloom as was invariably the case in former years, except on those branchlets which have been protected by neighbouring plants. *Cestrum elegans*, *C. Newellii*, and *C. fasciculatum* do not seem, however, to have been affected by the bad weather, and they are all of them in good flower. Allied to *Cestrum* is *Solanum aviculare*, which, though not supposed to be hardy, has grown out of doors here without protection, and has survived two winters without hurt: it is now a very pretty object with its fine large mauve flowers. Nearly all the *Rhododendrons* are out of bloom, but *R. Keyesii* retains a number of its peculiar red-yellow flowers which look like a Cape Heath, though the leaf is unmistakeably like a *Rhododendron*. *R. micranthum* also still displays its branches of small white blossoms. *Indigofera amblyantha*, one of the new plants introduced

by Mr. E. H. Wilson from China, and originally known as "*Indigofera* No. 786 W," has just come into flower here: light red in colour, with leaf and habit not unlike the other species of the genus, it promises to be an interesting plant; branchlet herewith.

On account of the wet spring and summer, several shrubs did not show much flower this year—for instance, the common *Lilacs*: but on the other hand certain plants bloomed freely, some very freely. Among these may be mentioned: *Acacia armata*, *A. pulchella*, *A. verticillata*, *Billardiera longiflora*, *B. fruticosa*, *Calceolaria violacea*, *Ceanothus puniceus*, *Cytisus proliferus* (quite 16 feet high), *Gnidia carinata*, *Hakea pugioniformis*, *H. ulicina*, *Hibbertia Readii*, *Melicactus ramiflorus*, *Rhododendron Griffithianum*, *R. concinnum*, *Sutherlandia frutescens* (descended from plants raised from seed collected by Sir Frederick Shaw near the River Vaal during the Boer War), *Trienaspis laeucolata*, *Trochodendron aralioides* and *Westringia rosmariniformis*, *Embothrium coccineum* of which there are several specimens here—one some 25 feet high—did not flower as profusely as usual: the same may be said of *Acacia dealbata* and of *A. melanoxylon*. *Anopterus glandulosus*, a beautiful evergreen from Tasmania, *Leucopogon Richii*, and *Sphacelae campanulata* produced but little bloom: while *Dendromecon rigidum* is only now coming into bud. The Chinese *Rhododendrons* were somewhat disappointing: *R. spinuliferum* and some others did not flower at all. I enclose a branchlet of *Hakea pugioniformis* showing its peculiar fruit.

Among the shrubs still to flower there are:—*Bowkeria triphylla*, *Chilanthus oleaceus*, *Colquhounia vestita*, *Cyrrilla racemiflora*, *Erica cerinthoides* (a splendid Cape Heath, bright red), *Jacobinia pauciflora*, *Melaleuca hypericifolia*, *M. nesophila*, *Notospartium Carmichaeliae*, *Rhabdothamnus Solandri*, &c.

It may be of interest to add the names of some plants that are doing very well in the open, but which have not yet flowered, nor does it seem likely that they will do so this year:—*Acacia baileyana*, *A. longifolia*, *Astroloma pinifolia*, *Banksia integrifolia*, *B. spinulosa*, *Brachyglottis repanda*, *Brachylaena dentata*, several *Callistemons*, *Cantia dependens*, *Carpodetus serratus*, *Corynocarpus levigata*, *Dais cotinifolia*, *Gordonia anomala*, *Guevina Avellana*, *Hakea florida*, *Hoheria populnea*, *Iseopogon latifolia*, *Lomatia tinctoria*, *Magnolia Delavayi*, two *Melaleucas*, whose specific names have not yet been ascertained, *Metrosideros lucida*, *Myoporum laetum*, *M. acuminatum*, *Phyllea nitida*, *Proustia pyrifolia*, *Trienaspis dependens*, *Visnea Mocanera*, *Weinmannia racemosa*, *Whipplea modesta*, &c.

The following Conifers and miscellaneous plants may conclude this account :—*Callitris australis*, *C. oblonga*, *C. robusta*, *C. verrucosa*, *Juniperus Cedrus*, now some 14 feet high, *Phyllocladus trichomanoides*, *Tetraclinis articulata*, *Puya chilensis*, *Musa Basjoo*, *Restio subverticillatus*, *Erythrina cristagalli*: the last will probably flower later, as well as *Lilium nepalense*, which is now in bud.

Since the above was written, the following are among those that have come into bloom :—*Calceolaria alba* (which, though reputed tender, has done well here in shelter), *Callistemon salignus*, *Dendromecon rigidum*, *Dianella tasmanica*, *Eucryphia pinnatifolia* (a plant some 25 feet high, and always smothered in flower), *Fremontia californica*, *Gaya Lyallii*, *Hypericum aureum* (a very distinct and beautiful shrub), *H. triflorum*, *Lomatia longifolia*, *Mutisia decurrens*.

I owe many of these rare plants to the kindness of Sir Frederick Moore of Glasnevin more especially, and to Professor Bailey Balfour of the Edinburgh Royal Botanic Gardens; also some to Mr. Walpole, Mr. A. Boseawen, and other friends.

Lilies in 1916.

I know not how Lily growers may have fared in Ireland this year, but in the south of England and in the west of Scotland the present season has proved disastrous to their favourite genus.

The summers of 1914 and 1915 were so favourable to the development of growth and blossom that we were deluded into the belief that means had been devised for averting or successfully combating the direst enemy of the race—*Botrytis cinerea*. But this year the most assiduous care has failed not only to prevent, but even to mitigate, the ravages of that fungus.

and, most serious of all, species which we fondly imagined to be immune from its attacks have either succumbed or been badly disfigured. For instance, the splendid *Lilium regale*, after making excellent growth and coming to the point of flowering, suddenly developed the fell blotches, and the blooms have been ruined. *L. Sargentæ* is following suit, and *L. Humboldtii* has been overwhelmed; even the new and free growing Lily which I do not know whether to call *Sutchuense*, *pseudo-tigrinum* *Biondi* or *Wilmottiae*, has been overtaken just as the first blooms opened. Early-flowering species escaped the contagion—namely,

L. umbellatum, *pyrenaicum*, *martagon*, *monadelphum* and *pomponium*, though *L. Hansoni* suffered badly. *L. canadense* is perfectly healthy, but many groups of *pardalinum* have been affected. *L. testaceum* is good in parts, like the curate's egg, and so are its reputed parents *L. candidum* and *L. chalcedonicum*.

The excessive wet of last winter has destroyed many established bulbs. Gone is the peerless *L. Browni* from a bank which it graced for three consecutive seasons: *L. Philadelphicum* has sent



LILIUM GIGANTEUM
At Mourth.

up but a few weakly, flowerless stems, and *L. auratum* has put in a very irregular appearance, except where the bulbs are protected by the roots of trees or shrubs.

It is a relief to turn from this dismal catalogue to contemplate the irrepressible vigour of *L. giganteum*, which only asks for liberal nourishment and cool quarters to defy disease and such enemies as mice and rabbits. The disappointment experienced by many persons in a first attempt to cultivate this the easiest of all Lilies arises from the dried-up condition in which purchased bulbs are generally received. No Lily is more easily transplanted when fresh, and the profusion with which the flowering bulb produces both seeds and offsets ought to ensure this fine species being grown far more commonly than it is.

Botanists are not yet agreed about the claim to specific rank of a Lily lately introduced from China under the names of *L. mirabile* and *L. giganteum Yunnanense*. Probably it may turn out to be no more than a geographical variety of *L. giganteum*, which first came to this country from the Himalayas some sixty or seventy years ago; but in any case the difference between them is so well marked as to entitle the Chinaman to distinction as a valuable garden plant. The weak points of the typical giant Lily are, first, the greenish tinge spread over the exterior of the newly opened trumpet. This disappears when the flower is fully expanded, but the petals never acquire the snowy lustre which the Yunnan variety displays from the first. Second, the trumpets of the true *L. giganteum* slant downwards, leaving the apex of the spike somewhat inelegantly bare; whereas those of the Yunnan Lily are held horizontally, or nearly so. On the other hand, the newcomer is without the splendid cushion of large radical leaves from which the Indian Lily sends up its towering flower stem. The stem is very dark, and the stem leaves deeply tinged with bronze as compared with the light green of *L. giganteum*. In stature, the Yunnan Lily here was far inferior to the other—3½ feet against 9 feet—but that may improve when the plants get established. It has been stated that the Yunnan variety is centrifugal—that is, the flowers opening from the top downwards, whereas the true *L. giganteum* is supposed to be centripetal, the lower flowers opening first; but this feature cannot be relied on. This summer I examined about thirty spikes of *L. giganteum* in the garden here, and found that in every instance the first flowers to expand were neither at the top nor the bottom, and the last to open was invariably the lowest of the tier.

HERBERT MAXWELL.

Monreith.

The Tamarisks.

BOTANICALLY called *Tamarix*, the Tamarisks form a valuable group of mostly late flowering shrubs blooming in August and September. Not enough use seems to be made of the Tamarisks, as it is seldom one meets them in gardens even where much interest is taken in shrubs. Though naturally seaside plants they are not averse to inland conditions if given fairly good soil, and when massed are capable of a very fine effect. Some of our Irish gardens situated near the coast might with advantage make a fine feature of Tamarisk hedges, and few shrubs better withstand heavy gales. The shoots are long, slender and supple, and not easily broken, but where a screen or windbreak is desired it is better to erect a rough fence first then plant Tamarisks closely and tie the shoots to the fence. In a very short time they will form a dense interlacing mass, and even when leafless in winter will provide quite considerable shelter where few other shrubs will live. Propagation is very easy, as cuttings made from shoots of the previous summer root readily in the open ground. They need only be about 9 inches long, and inserted two-thirds of their length in the soil, when they will root freely. If a hedge is to be made, cuttings may be inserted where they are to grow.

For large masses in grounds and public gardens no prettier autumn flowering shrubs can be desired, while in smaller gardens they may be used in shrubberies or as single plants on the lawn.

One species is wild in Britain—viz., *T. Anglica*—which is found on the south-west coast of England. It produces long slender racemes of pinkish-white flowers very pretty when seen in a mass.

Tamarix hispida, which is often catalogued as *T. kashgarica*, is a handsome species producing beautiful pink racemes in August or September.

T. pentandra, usually found in catalogues as *T. hispida aestivalis* or *T. Pallasii*, produces fine feathery panicles of rosy-pink blossoms during August. This is one of the most beautiful species, and not excelled by any other shrub flowering at the same time.

Tamarix tetrandra is an earlier flowering species, flowering on the previous year's growth. The flowers are a pretty shade of pink, and look very well in May.

For decorative purposes the Tamarisks are best treated as shrubs and pruned hard back in spring, with the exception of the last named, which may be pruned after flowering.

ARBOR.

Lycium barbarum.

This is an extremely useful hardy ornamental climbing shrub. It can be grown in almost any position, and thrives in practically any kind of soil, however poor. It flourishes amidst the smoke and dust of the town, and is one of the best climbing shrubs for planting in exposed positions by the sea-side, as it withstands the sea-breezes remarkably well. It grows rapidly, is of a nice bushy habit, the long slender branches hanging out gracefully from the stems.

The leaves are small, lance-shaped, and the flowers, which are of a rosy-purple, are small and by no means showy. They are carried in the axles of the leaves, and are borne most profusely and continuously throughout the summer and early autumn.

Propagation can be done by means of cuttings taken during autumn: they root readily in a cold frame.

Layering of the branches may be resorted to, and as suckers are easily obtained, they provide yet another means of propagation.

F. ROSE.

Freesias.

BEARING beautiful sweetly-scented flowers, which are produced during the winter and spring, *Freesias* are invaluable for use in the greenhouse, not only for the sake of the display but also for the excellence of their blooms for cutting. The bulbs should be potted up early in August in 5-inch and 6-inch pots, allowing from 8 to 10 bulbs to each pot, using a compost of a light, rich nature. A suitable compost would be a mixture made up thus—three parts loam, one part leaf-mould, and one part cow-manure shredded fine through a sieve, with enough sand added to make the mixture thoroughly porous. After potting, if the soil is dry, give the pots a soaking of water, but if the soil is moist do not give any water. The pots can now be placed in a cold frame, and no watering will be required until growth appears. During mild weather give plenty of air.

As soon as the flower spikes show they may be brought into the greenhouse. Meanwhile they will require staking: this can be done by using very thin stakes and raffia or by placing spriggy twigs in the pots in such a way as to support the flowers and foliage. After flowering they need as careful attention as before, as at this period the bulbs have not yet finished growing, and require some time yet to ripen off their growth, so that water should not be withheld until the leaves begin to change colour.

When the foliage dies down the pots containing the bulbs should be placed—not anywhere, but in some warm, dry position, such as on a board placed over the hot-water pipes, where they will be properly and thoroughly ripened off.

F. refracta, white, blotched with yellow on the lower segments, and its variety *alba* are about the best known of the species. The fragrant flowers are borne on branched stems which reach a height of from 12 to 18 inches.

F. Leichtlini major bears large fragrant flowers of a deep yellow, while those of *F. Tubergeni* are of a rosy-carmine.

F. Amethyst is a charming variety, of a light mauve, and delicately scented.

F. ROSE.

Funkias.

THE *Funkias* or Plantain Lilies form a most ornamental and useful genus. Not only do they produce graceful spikes of bloom, but the foliage is of a highly ornamental nature. They are excellent plants for the border, or for planting in such positions as the openings in the front of the shrubbery. They make very effective groups, grown by themselves, and are very pretty by the waterside. *Funkias* need a deep rich soil to develop their foliage in all its luxuriance, and they should receive a mulching of manure during the autumn or winter. Propagation is best done by division of the plants: this can be performed either in autumn or spring, the latter time being the best.

F. sieboldiana, the best known of the species, is an elegant plant, with long-stalked broad heart-shaped ovate leaves, of a pleasing glaucous hue. The flowers, which vary from white to lilac, borne in one-sided racemes, are produced during July and August, and, as they stand well above the foliage, are most effective. *F. sieboldiana* major is a noble plant, with large glaucous leaves often measuring one foot across.

F. Fortunei is somewhat similar to *F. sieboldiana*, but has foliage of a lovely glaucous blue. The native flowers, borne in scapes, are produced during the late summer: *robusta* is a stronger-growing form, and is a most striking plant.

F. grandiflora is a particularly fine species with immense foliage: it bears sweetly-scented flowers of a good white: the variety *alba* produces larger flowers, which are a pure white and very fragrant: this species is in bloom from July until September. *F. grandiflora* cannot be termed really hardy, as it only does well in mild favoured situations.

F. lanceifolia is a distinct species which differs from the other species in having the leaves

lance-shaped. It is not so robust as the foregoing species, and the lilac-coloured flowers are not very prominent, as they barely appear above the foliage. *F. lancifolia albo-marginata* has the leaves prettily edged with silvery white, and there is also a variegated form in which the leaves are blotched and streaked with white.

Besides their utility for outdoor decoration, Funkias are excellent plants for the cold greenhouse, and some of the strong-growing varieties, when grown in large pots or tubs, are excellent decorative plants for the terrace or verandah.

F. ROSE.

Hypericum olympicum *citrinum*.

WHILE walking through the rock garden at Kew, in the end of July, I was struck by a plant of this *Hypericum* with pale yellow flowers. Like the well-known *H. olympicum* in all but the colour of the flowers, it formed a pretty object quite distinct in colour from any other species. One of the best late flowering *Hypericums* is *H. empetrifolium*, which now, near the middle of August, is a mass of golden yellow; combined with the erect, compact habit and tiny heath-like leaves, a very pretty effect is produced. Coming from Greece and Asia Minor, *H. empetrifolium* occasionally suffers in a severe winter, but if planted in a sunny aspect at the base of a sheltering stone and in rather dry gritty soil, it usually survives and grows away strongly in spring. Cuttings of the young shoots root readily.

Hypericum emneatum is a charming little species with reddish stems and tiny glaucous leaves, and bearing in June and July small yellow flowers. It is rather a difficult plant to handle, being very brittle, but cuttings root well in sandy soil if carefully taken off before the flowers appear.

B.

The Alpine Garden.

MUCH can be done during September to make the alpine garden neat and interesting during the autumn and winter. Any plants which have old flower spikes still remaining should be trimmed over excepting any required for seed. It is a good plan to keep a basketful of fine gritty soil handy, and as one goes over the various plants and pockets add a little topdressing wherever it seems necessary. Heavy rains not infrequently play havoc on the rockery, washing

down the fine soil from the higher places, and sometimes covering over plants of very low growth; hence a thorough examination should be made now, clearing any that have been too deeply covered and surfacing any that have become bare. The inexperienced must be careful not to prune any of the low-growing shrubs which bloom in early spring, as these are now finishing growth and plumping up their flower buds for next year. Likewise early flowers like *Aubrietias*, *Arabis*, *Alyssum* and many others should not be further cut back now, but topdressed as advised above if necessary. A great many cuttings may be put in during September, and any not rooted sufficiently to lift and pot before hard weather ensues will callus and root in spring. Seed collecting requires attention every sunny day, and no opportunity should be lost of obtaining seeds of the species whenever possible. Seedlings, as a rule, make better and stronger plants than cuttings, but, of course, varieties of garden origin cannot be relied on to come true. Plants like *Viola gracilis* and *Campanula Steveni* are better from seeds when they can be procured. Both are beautiful plants when in flower, but have a habit of dying after flowering. Some few plants of each, however, generally survive and set seeds, and they should be collected as soon as ripe and sown at once.

We are told very often that all seeds should be sown as soon as ripe—that that is Nature's way—but I have a notion that late collected seeds are better kept in a cool airy place till February or March, and then sown and placed in gentle heat or in a frame which would catch the early sun. It would be useful to have the experience of readers who collect and sow seeds, particularly late ripening *Saxifragas*, &c.

It is interesting now towards the end of August to note which plants are most attractive. I think the brightest patch here is of *Acæna microphylla*, whose spiny bright red fruits can be seen from a considerable distance; some of the *Erodiums* are still wonderfully good, and *Silene Schafta* makes quite a show, and soon autumn flowering *Crocuses* will begin to expand. On the whole, however, the season of many flowers is over, but there is a peculiar joy in watching the various winter foliage effects, replacing the showier flowers of spring and summer. The silvery grey rosettes of the encrusted *Saxifragas* are more silvery now than earlier, and the grey and green tufts of the *Kabschias* never cease to charm. The ever-spreading mounds of "mossy" *Saxifragas* are refreshing to the eye, the mounds of grey and green dwarf shrubs lend variety and sustain our interest.

Dwarf Brooms for the Rock Garden.

Few plants are more attractive during May and June than the dwarf Brooms, all of which are excellent subjects for the rock garden, and many such places are made more attractive, and certainly more interesting, where some of them are accommodated, and if space permits of them to ramble about over the stones they present a very charming effect. But where room for them is limited, the wood that has flowered should be

C. Beanii, a chance hybrid between *C. Ardoinii* and possibly *C. purgans*, from 6 to 18 inches high, bearing during May long sprays of deep golden-yellow flowers, and is quite one of the prettiest of dwarf Brooms.

C. decumbens, undoubtedly the most prostrate of all Brooms, lying, as it does, on the ground, is especially suitable for a sunlight spot in the rock garden, when during May and June it is very gay with the rich bright yellow flowers. A native of S. Europe, from France to Albania



MESEMBRYANTHEMUM CRASSULINUM
In Cambridge Botanic Gardens.

cut back to an inch or so from that of the previous year, particularly those of a rambling nature. If this pruning is done with care it will in no way affect their blooming the following year.

There are a number of these decorative shrubs, but the following are among the best :

Cytisus Ardoinii, a native of the maritime Alps, but is said to be extremely rare in a wild state, owing to animals grazing on it before seeds have time to ripen. It was first discovered by Ardoin in 1847, but lost sight of until 1866, when it was found again by the Rev. W. Hawker—a beautiful little shrub quite hardy and free-flowering, certainly one of the best for the rock garden, and has been the seed parent of several beautiful hybrids,

and Montenegro, said to have been introduced in 1775, but now very rare in gardens.

C. Kewensis, another beautiful hybrid between *C. Ardoinii* and *C. albus*, a low deciduous, perfectly procumbent shrub, less than a foot high, with creamy white flowers on long sprays during May, and few dwarf shrubs are more beautiful, especially where it can ramble over stones or hang over a large boulder, where it will form quite a cascade of flowers; really a beautiful sight, and should be on all rock gardens.

C. leucanthus, or better known as *C. schipkensis*, a native of S. E. Europe, introduced in 1806, but lost sight of, and again introduced in 1890. A deciduous spreading shrub, from 4 to 10 inches high, with flowers of yellowish

white, closely packed in terminal clusters during June.

C. purpureus, perhaps not so suitable for the rock garden as some, but there are some parts where it may be used with good effect. It is a low-growing plant of a sub-shrubby nature, producing its new growths annually from the ground from 15 to 30 inches high; it is one of the most distinct of Brooms, owing to the colour of its flowers, which are of a pinkish purple. It is a native of the European Alps, and was introduced in 1792.

They are easily raised from cuttings of half-ripened wood and placed in sandy soil in a little heat or a close frame. As they are very reluctant to root disturbance, they should be grown in pots and planted into their permanent quarters when young.

Cambridge.

F. G. P.

Notes.

Pentstemon Hartwegii roseus.

This is one of the smaller-flowered varieties, but is very pretty when seen in a mass. Though lacking the brilliance of some of the large-flowered florists' varieties, it nevertheless gives a great quantity of flowers of a nice soft rose pink. It is an excellent border plant, growing about eighteen inches high, and would make a showy autumn group on a large rock garden.

Mesembryanthemum crassulinum.

This charming member of the Figwort family is one of the most suitable of the whole genus for the rock garden, being neat and compact in habit, forming quite a cushion of succulent leaves, while the pure white flowers, an inch or so in diameter, are borne in great profusion during June and July, and often on into the autumn.

It is a native of S. Africa, and appears to be little known. The illustration (see p. 135) is of a plant which has been growing in the rock garden at the Botanic Gardens, Cambridge, for a number of years, and so far has proved to be quite hardy; it should be given a warm spot in a sheltered position in well-drained soil, and like the majority of the family, is readily rooted from cuttings.

F. G. PRESTON.

The Bitterwort.

GENTIANA LUTEA.

MOST hardy plant growers are familiar with the smaller *Gentians*, such as *G. aculis* and *G. verna*, but not so many know and grow what is perhaps the giant of the genus, viz., *Gentiana lutea*. Nevertheless it is a handsome plant, and a healthy group, with every shoot surmounted by a spike of golden yellow flowers in July, is a very pleasant sight. It is one of the plants that once established prefers to be left undisturbed for years or until showing signs of failing. Then it is better to begin again with young plants than to lift and divide the old clump, as it will often sulk for some years afterwards, and not infrequently dies. Seeds are produced in quantity, and should be sown when ripe. Germination is often slow, but, on the other hand, a sufficient number will usually vegetate the following spring to provide all the plants necessary for most people. They should be pricked out and grown on in pots until large enough for permanent planting.

Regarding soil, this seems to depend on the district. In some districts, where the soil is what is known as a peaty loam, there is no difficulty. In this kind of soil there is enough humus to render it moist without being sour or stagnant. Elsewhere, however, where the soil is of a dry nature, the addition of peat or leaf-mould or other decayed vegetable matter is imperative. All *Gentians* love moisture, especially in summer, but they do not like a sour soil, and must therefore have perfect drainage.

G. lutea when growing well may approximate six feet in height when flowering, but more often perhaps four feet is considered good.

Though an old plant in gardens, the Bitterwort is not often seen in really good condition. The roots furnish the medicinal *Gentian root* of commerce.

GENTIANELLA, Dublin.

Cornus Kousa.

A NATIVE of Japan, Corea and Central China, this is one of the showiest of the *Cornels*. It is a deciduous shrub, sometimes, when doing well, becoming a small tree, producing its flowers in June, or in some localities earlier. The true flowers are not conspicuous, but this is compensated for by the large white bracts which surround the cluster of flowers. There are four bracts to each head or cluster of flowers, and when freely produced and at their fullest development the effect produced by a single bush is very fine. The illustration in the present issue is of a plant in the fine collection at Mount Usher, Co. Wicklow, and we owe it to the courtesy of Mr. E. H. Walpole.

Phygelius caponsis

THIS strikingly beautiful autumn flowering plant is not too often met with in gardens. It is a S. African plant, and when grown in the open very often behaves like a herbaceous plant, dying back to the ground level annually. Strong young shoots are produced in spring which, given a favourable summer, bear large panicles of handsome tubular scarlet flowers. If grown on a sunny wall the shrubby character is better maintained, the flowers are produced earlier. In mild districts it forms a bush in the open, and is well worth trying in many parts of Ireland.

In favourable seasons seed is produced and germinates easily in slight heat, otherwise cuttings strike readily during spring and early summer.

Pentstemons.

THERE is no more interesting or beautiful set of plants than the Pentstemons nor one which better merits the attention of all who desire beautiful gardens in autumn.

Among the species there are many beautiful plants, but it is the popular garden varieties that are chiefly responsible for the autumn display. There is a considerable range of colours now to choose from, from deepest blood red to softest pink and white, as well as several purple shades which give variety and associate well with herbaceous plants. All the modern garden varieties are similar in habit though varying a little in height and vigour, but what is known as the "Gem" set are rather distinct in their free branching habit, and smaller flowers which, however, are borne so profusely that lack of size is more than compensated for, and not a few people prefer them to the larger-flowered varieties. For the herbaceous border Pentstemons are extremely useful, providing fine masses of colour in the

autumn, and looking extremely well among the blues and purples of the Michaelmas Daisies. For beds they are also well adapted, the only difficulty in this respect being that where bulbs or other spring flowering plants are used there is difficulty in getting out the Pentstemons early enough. To do really well Pentstemons should be planted out in April in rich, cool soil, and so it is best to arrange for the necessary beds or borders to be vacant at this time, or otherwise make provision for growing on the plants in pots or reserve ground until they can

be got out; best results, however, are got by planting in flowering quarters at once.

Some varieties, notably "Crimson Gem," are very hardy, and will continue to do well in the same bed for several years, requiring only a top-dressing of soil and a little artificial manure in spring. Now is a good time to put in cuttings for next season. The plants are now at the full vigour of their growth, and on the lower portion of the flowering shoots numerous short side shoots are now available for



HAKEA PYCNOSTACHYA
Fruiting at Rostrevor House.

cuttings. Shoots with three or four joints are very suitable, and require only the lower pair of leaves and sometimes the next pair removed; cut clean across below the lowest pair of leaves and the cutting is ready for insertion. Boxes three inches deep with sufficient rough material placed in the bottom to ensure drainage are very suitable, the compost being composed of sandy soil and leaf-mould. The cuttings may also be dibbled into a shallow, cold frame or they may be rooted under bell-glasses or handlights placed on beds of light soil. It is essential that the position in which the cuttings are to be struck should be shady, and it is better that it should be naturally shady than to attempt to make a sunny position cool by artificial means. The cuttings must be kept close and cool. When they have been put in one good watering should suffice.

The Arboretum.

DURING August attention has been given to young trees recently planted that is, within the last year or two. All the leaders are carefully examined, and if any have got broken or injured, an attempt is made to replace them by tying up a side branch, should one be suitably placed, otherwise the side branches near the top are shortened back 6 inches or more, according to their length, with the object of strengthening the buds at the base of the injured leader in the hope of getting a strong young leader in spring. Too much shortening or removing of the lower branches is not advisable, otherwise the leader may grow too long and too late, failing to thicken as it lengthens, and often suffering in winter. Older trees may be thinned out if necessary, even though still in leaf, as the upward flow of sap is now very little, and the removal of even quite large branches may be carried out without risk of injury to the tree. As has been pointed out before in these pages, large trees which have ceased growing to height often become very dense, and when in full leaf are easily affected by strong wind, and may sustain irreparable damage. If, however, they are kept reasonably thin, the wind can pass through amongst the branches, and meeting with less resistance, causes no damage to the tree. With valuable trees such work is worth doing, and the branches to be removed can often be best determined while the tree is still in leaf. While going through the young trees, all which, unfortunately, may have required staking, are carefully examined to see that the ties are not too tight, and that the stakes are not rubbing the stem or branches, thereby injuring the bark and rendering easy an attack by fungi. One of the worst pests we have had to deal with was a species of *nectria*, to all appearance the same as that which attacks fruit trees. It particularly affects horse chestnuts and maples, but occurs on many others. If a young tree is very badly affected, it is just as well to burn it, but if got in time the affected bark, through which the brightly coloured perithecia are seen protruding, should be entirely cut away, and the wound thus formed heavily coated with coal tar. In this way we have succeeded in curing quite a number of trees. Occasionally, too, American blight makes its appearance on ornamental species of *pyrus* just as it does on apple trees. If the tree is not too big and the attack not too severe, methylated spirits applied with a small paint brush is effective; for larger trees spraying in winter with a good caustic wash is the only deterrent. Many other diseases and pests attack trees and shrubs, and the arboriculturist's life is hardly less free from worry than the fruit grower's.

Among the prettiest shrubs in flower now are the hardy Fuchsias, of which there are several quite hardy and some hardy in sheltered positions. Perhaps the best for general purposes is *Fuchsia Riccartonii*, which makes a fine bush in a few years, flowering freely annually, the bright red sepals surrounding the purple corolla being quite showy. Another strong grower is *F. corallina*, like the last of garden origin, but producing larger leaves and flowers, the sepals being rich scarlet. *F. macrostemma* makes a beautiful wall shrub, throwing out its young branches from the main stems on the wall and bearing abundance of flowers, the calyx brilliant

scarlet, contrasting well with the soft, green leaves. *F. gracilis* is another form, but with smaller leaves, the flowers having red sepals. It seems quite hardy here, and makes a useful rockery shrub. *F. punila* is a dainty little gem which here never gets much above a foot high, branching freely from the base and forming a dense round shrub, producing abundance of small flowers with red sepals. *Fuchsia conica*, with slim red and purple flowers, grows well here on a wall, as also does *F. globosa*, *F. serratifolia*, *F. Eppsi* and *F. exorticiata*, the curious flowered New Zealander, *F. microphylla*, *F. parviflora* and *F. thymifolia*, comparatively small growers with tiny flowers, flourish here on the rockery.

One of the prettiest small trees I have noticed lately in the arboretum is *Robinia pseudacacia* var. *rosynskyana*. The leaves are long and pendulous, of a fresh green colour; the whole effect of the tree growing among others is very graceful.

For some reason the later flowering *Spiræas* alluded to last month are not particularly good here this year. As a rule the japonica group can be relied on for a display in August, and the *salicifolia* set are also usually satisfactory, but the latter especially is poor this year, and there is little promise of flower or the large-growing pinnate-leaved species, which are best known in gardens by *Spiræa Lindleyana* and *S. Aitchisoni*, but now include several other handsome species from China. This may be a purely local condition since one would have supposed the showery weather in early summer very suitable for growth.

However, there are compensation, in the autumn flowering *Ceanothuses*, *Fuchsias*, *Spartium junceum* still a blaze, *Hydrangea arborescens grandiflora* with huge heads of bracts, *Solanum crispum*, &c. The Cornish Heath is now making a show, and where the Heaths grow well what a fine display can be made with varieties of the common *Ling Calluna vulgaris*! These varieties vary enormously in height, and some are quite hairy, while others are smooth. The white forms are much favoured, *Alba minor*, a dwarf one, being very pretty; *Alba Serlei*, tall and graceful, is a fine variety, while *Alba pilosa*, with greyish foliage, is distinct and beautiful; of those with coloured flowers *Alporti* is a great favourite, tall and strong growing, with crimson flowers; others are *flora plena*, with pink double flowers; *hypnoides*, a dwarf compact variety with purple flowers, and *Foxii*, dwarf with pink flowers.

Peroovskia atriplicifolia is making a pretty show just now. It is a delightful autumn flowering shrub for a sunny position in well-drained soil. The grey leaves surmounted by long spikes of light blue flowers make a very pretty combination. The whole appearance of the plant is grey blue, even the calyx of the flower being thickly covered with grey hairs. It is best cut hard back in spring, and when the young shoots are three to four inches long they root readily if detached with a thin "heel" of the older wood.

Buddleas are now making a good show about the grounds, the most useful being the various varieties of *B. variabilis*, *C. Since B. var. Veitchiana* was introduced many improved forms have been sent out, notably *magnifica*; and *superba*; from these again seedlings have been raised, and some with enormous inflorescences and varying in colour have been obtained.

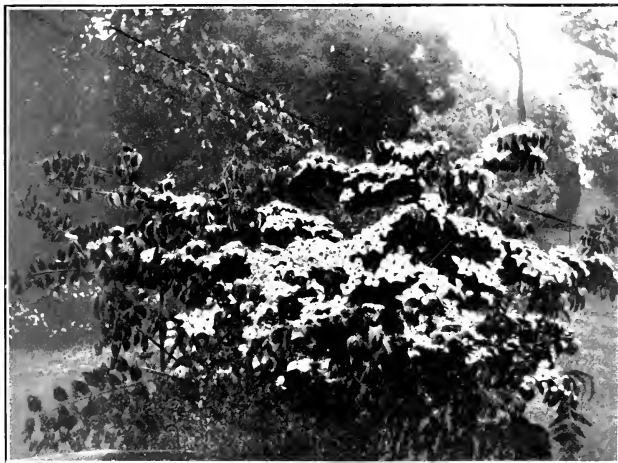
Are we to have Flowers or not?

THAT is the question many will soon be asking as the time for planting bulbs and many other things approaches. The private individual knowing his own resources and the increased cost of living, will decide for himself, but experience does not lead us to believe that there will be an entire cessation of flower gardening even now. Urgent appeals have been made to all to invest in War Loan Stock, so that there may be no lack of material to carry on the war to a successful conclusion. It is urged, and rightly so, that nothing should be withheld from our gallant soldiers and sailors that will enable them to cope successfully with the enemy; on the other hand, it may be urged that thousands of these brave fellows must come home sick and wounded, and the great majority of them spend their days of convalescence in gardens or grounds, public or private. It behoves us then to make these gardens bright and beautiful, and it is remarkable that practically all these men display the keenest love of flowers.

How often maybe a group of some homely flower, a bright patch of colour or a sweet scent, "brings back to memory days of long ago," soothes the shattered nerves and helps to heal an aching wound. Private grounds have been generously opened to soldiers and sailors, many a merry garden party during the last two years has been composed of men on crutches who amid the bright surroundings of a garden forgot for a time their pain and suffering and won their way back to health and strength. Nor is that all, soldiers who were probably gardeners in civilian life have been observed spending hours examining the plants in a public rock garden and carefully entering names in a notebook, a sure sign that gardening, in spite of the war, continued to occupy a large share of their thoughts. In how many gardens, too, are there plants growing which have been raised from seeds sent home by some brave fellow who in some cases, alas! will not return himself, and so we trust that public bodies especially will not carry to excess the reduction of flower beds and the general discontinuance of ornamental gardening. We gardeners ourselves are somewhat to blame for rendering it

possible to reduce the ornamental side; if, instead of "bedding out" so many tender exotics requiring much labour to produce and many expensive houses to protect them in winter, we had developed features more permanent, such as the herbaceous border capable of as fine an effect as any border of tender plants; the water garden, with its infinite charm in bright summer weather; the rock garden than which nothing can be more beautiful when planted for effect and without necessarily including rare and "miffy" subjects; the vast number of beautiful shrubs which, well planted and carefully selected, give beauty the year round, and the endless possibilities of gardening in grass by means of bulbs and many other plants, then there would have been little chance of reduction, and with care and manage-

ment such permanent features could at least have been kept going even with a reduced staff. Therefore, while we do not deny the first importance of producing all the food stuffs possible, we submit that there is much ground which would require a vast amount of labour to make it fit to grow fruit and vegetables, yet could be very well made beautiful with bulbs and other permanent plants.



CORNUS KOUSA
At Mount Usher, Co. Wicklow.

The great nursery and seed firms which before the war had grown up in response to the national call for flowers, and more flowers, should not be neglected now, many of their employees have gone to the war, but many were over age, and it will be no economy to make them dependent on the rates.

B.

Nicotiana sylvestris.

THIS is the handsomest of the Tobaccos, growing 6 feet high in good seasons. The basal leaves are very large, those on the stem rather smaller. The flowers produced at the top of the stem are long-tubed, somewhat pendulous and pure white. Here it seems to be a biennial, but seeds itself about in a narrow border in front of the glass-houses. If it could be induced to establish itself in a sunny shrubbery it would look very well among the shrubs in autumn.

GLASNEVIN.

Hints for Amateurs.

By R. M. POLLOCK.

GLADIOLI. What better effect can be had than that produced by a group of these in late summer! They should indeed be more generally grown, as they have all the qualities necessary to encourage planting and certain success. They are not expensive, as a stock once laid in will last for years under careful treatment, and they seldom fail to bloom if the corns are strong and healthy. Planting should be done in March in well prepared ground, and generous treatment will be well repaid. Good stable manure well worked in with the soil at digging time is what they enjoy. Gladioli can be had in separate colours and in named varieties, and these can be planted on the edges of shrubberies mixed in with dwarf shrubs in clumps in the herbaceous borders, or in nursery lines in the reserve garden for picking and decorative purposes. Planting single bulbs should be avoided, in all cases several should be planted together, from five to ten or more corns, and, if possible, keep the colours together, the effect by so doing is infinitely greater. Where the locality is dry and the corns are strong, it is not necessary to lift yearly, but if lifting has to be done they should be stored in a well ventilated shed, not left in heaps, but spread out, so that the air can pass freely through them.

MONTBRETIAS. Here again are bulbous plants which from want of proper treatment are seldom seen good, and are usually found in rather a neglected part of the garden. Montbretias can now, like many other good garden plants, be had in distinct colours, even in named varieties, and some of these are a beautiful shade of soft yellow with large flowers two inches across, very different to the old forms found in gardens. The complaint generally is that they go to leaf, forming a large clump of green with practically no flowers. This is the case when neglected and not properly treated. To have them good they should be lifted and divided every year. There is no necessity to store them or to dry them, but they must be lifted, separated, and only the large corns replanted. By so doing they have room to develop, and every corn will flower. Good soil is essential, but they will do quite well in semi-shade where many other plants would not thrive. When left in the ground for several years, they increase rapidly and become so crowded that they are unable to produce flower spikes.

The Rose Garden

MILDEW.—This is the greatest enemy of Roses in autumn, and one which, if allowed to go unchecked, very soon puts an end to the Rose season by causing the leaves to fall. I know of no better preventive than spraying once a fortnight with a solution of potassium sulphide at a strength of two ounces to three gallons of water. The sulphide being usually in lump form is better if pounded up and dissolved in a little hot water, thereafter reducing to required strength with cold water; apply with and ordinary garden syringe or a small hand-sprayer, and thoroughly wet the leaves. It is an advantage to keep on spraying even when no more flowers are hoped for, because the leaves when they fall carry the

spores of the mildew to the soil below, where they are ready to spread infection the following spring. These late-produced spores are known as resting spores, and are specially adapted by nature to withstand the severities of winter; obviously, therefore, it is wise to frequently rake up the dead leaves as they fall, and burn them, thus still further reducing the danger of infection in spring. Lately, showery weather and heavy dews at night have caused many late-formed buds to decay before opening and many more fully developed to pass over very quickly. To keep the bushes neat and attractive as long as possible, these should be removed periodically, as with warm days numerous good blooms will still open. It is a remarkable fact that autumn blooms, which on Hybrid Teas especially, are often freely produced, are generally richer in colour than those produced earlier in the year. All late flowering Ramblers of the Dorothy Perkins type should be thinned out as soon as all the flowers are over, and the strong young shoots coming from the base tied in and made secure against wind. The amount of thinning to be done depends on the position and the space to be covered. Strong young shoots proceeding from a point higher up on the flowering shoots may be left if required for extension; as a matter of fact, where sufficient space is available to allow the shoots to ramble at will, very little pruning may be required. A sharp lookout must be kept for suckers, which frequently appear in autumn, removing all as near the point of origin as possible. Hybrid Perpetuals which flowered early in the season often make long, strong shoots during summer, and it is a good plan to reduce these by a third of their length to prevent them being blown about, and thereby loosening the plant at the root. Varieties which are pegged down, of course, cannot be so treated, but should otherwise be secured against damage.

B.

Notes for Novices.

VEGETABLES.—Late varieties of potatoes must be lifted as soon as possible when the weather is fine. The best means of storing the tubers safely throughout the winter is to prepare a pit in a sheltered position in the open. Cover evenly with 2 inches of wheaten straw, and above this lay on several inches of soil, making it firm and neat as the work proceeds. The onion crop may be drawn up and the bulbs laid out thinly on the surface in a warm airy situation which will give them every chance of ripening well, so that they may remain firm and plump during winter and early spring. Turn over the bulbs on alternate days while they are lying in the open until they are ripened off thoroughly. Then tie them up in bunches and hang in a dry airy shed. Bulbs with thick necks should be used first, as they will soon deteriorate in quality. The onion brake may be planted out with early spring cabbage. Little preparation of the soil will be needed with the exception of hoeing and clearing the ground of weeds. Cabbage will withstand the winter much better in firm ground than they would do if planted out in looser soil. A few days after planting hoe one inch deep between the lines. Carrots that have reached full proportions should

be lifted and stored in soil that must not be allowed to become very dry, otherwise they will split and become almost useless. Cauliflowers that are developing rapidly should have their heads well protected with leaves. A sowing of parsley may be made in a cold frame for winter use. Two or three small sowings of turnips may be made at intervals during the month. Tomatoes in bearing must have all side growths removed, and some of the leaves that are shading the fruits shortened back. Keep the plants well supplied with water and feed twice a week with farmyard liquid manure. An approved artificial manure applied occasionally will be beneficial by way of a change. Examine Marrow plants frequently with a view to cutting the fruit before they become too large, as young Marrows are generally to be preferred. If mildew makes its appearance cut off the affected leaves at once and have them burned.

Fruit.—Early apples that have completed development should be picked and stored in a cool fruit room. It is important in picking the apples from the trees to ensure they are carefully handled, because if they get bruised and are laid beside other sound fruit, one faulty apple will soon affect several immediately surrounding it, thereby causing much loss which might otherwise have been avoided. It is well to give those trees which have been cleared of their fruits a thorough syringing with the hose or garden engine in order to cleanse the foliage of insect pests. Clean healthy foliage retained on the tree as long as possible ensures fully developed buds for next season's crop. Later apples should have all side growths removed, so that abundance of light and air can reach the fruits to produce high colour and improve their quality. As pears approach maturity, they must be gone over daily, picking those only that are fit. The best means of knowing when the fruits have reached this stage is to take each fruit in the hand and raise it gently. If it parts readily by so doing the fruit is fit for removal. Pears require a slightly warmer and drier atmosphere for their storing quarters than that of apples. Their keeping qualities, of course, are not so good, in fact, some of the early varieties to have them at their best must be consumed soon after they are gathered from the tree. Plum trees that have produced vigorous growths this season should have these well thinned out to admit light and air to the fruits and buds. Use the syringe forcibly upon the foliage to get rid of green and white fly. Early varieties of fruit trees that have made too much wood growth and produced but little or no fruits ought to be lifted and root-pruned. The best time for this operation is just before the leaves begin to fall. With a sharp knife shorten the thick roots well back, and trim off neatly others that have been damaged in the lifting. Replant in the same soil, working in a little lime-rubble if deficient in this material. Ram the soil firm, and it may be necessary to support the tree with a stake until fresh roots have been made. If the soil be very dry, apply a good soaking of water, and syringe the foliage for a week or ten days after the operation.

Flower Garden. During September the flower beds may remain beautiful and gay if the weather conditions are free from frost. But as far as frost is concerned, this month is uncertain, so wise cultivators will do well to err on the safe side by taking cuttings of such tender plants as *Ageratums*, *Alternantheras*, *Iresines*, *Heliotropes*,

&c. These cuttings root freely on a mild hot bed, but when rooted should be transferred to a cooler structure. Tender subjects in pots that have been plunged in beds or borders during the summer should be removed indoors before the cold becomes too severe. There are many kinds of shrubs that may be increased readily where time and space can be afforded for their propagation. Seed should be saved where possible, if it is desired to raise a quantity of any given subject. Many plants can be raised from cuttings, inserted in a cold frame in a compost of light sandy soil. Any that fail to root from cuttings may be layered and rooted successfully by the help of the parent plant. Lift Violets from the open ground and plant in a frame. Before planting, apply to the soil a good dusting of soot, and lightly fork it in. Water in and admit plenty of air both night and day if the weather is fine. Stir the soil between the plants occasionally, and remove from time to time all dead and unhealthy foliage.

M. D.

Beekkeeping.

THE delightful spell of warm weather which set in and started the honey-flow on 19th July roused beekeepers from a despondent mood and put full steam on the hives once more. The white clover was past when the change came, but the blackberry coming into full bloom afforded fairly good pasturage without a break till the 10th of August. Since then the weather has been somewhat broken, but this broken spell permitted the clearing out of freshly gathered nectar from the brood combs, affording more room, which had been for some time restricted, for the queen to carry on her good work. The lime trees bloomed very profusely, and the weather conditions being favourable, some well-finished crates of sections have been procured from this source. There was the usual trouble with strong stocks swarming immediately before the honey flow set in, but those who succeeded in returning the swarms and getting them settled to work will have from 10 to 60 well-filled sections per hive. The wild Scabious has come into bloom earlier than usual, and I have, during the past week, met with some very fine sections filled from it even in districts where heather is equally plentiful and near, but the Scabious seems to yield more abundantly and at a lower temperature, or in less favourable atmospheric conditions than is required to attract the bees to the heather. It has been a splendid time for getting sections completed, and those who removed the full sections immediately they were finished, and crowded the bees on those that were returned to get the corners completed will have very few unfinished sections to deal with this autumn. In districts where the honey flow is over, all unfinished sections, not fit for home use, should be cleared of honey by placing them behind the dummy, which should be raised sufficiently to let the bees have access to rob and free the combs from any honey they may contain; they may then be placed in crates, securely covered with paper, and stored in some warm dry place for winter.

Where the honey flow is over stocks should now be prepared for winter. Any deficiency in stores should be made up by feeding with syrup made from 5 lbs. cane sugar (Fate's No. 1 Cube for preference) to one quart water, to which

20 drops of Izal should be added a few minutes after removal from the fire. The syrup should be given in the evening, and as rapidly as the bees can take it from a round tin feeder, or any other feeder suitable for rapid feeding. It is more economical to make up any deficiency this month than to feed with candy later on, or having to resort to feeding with syrup in spring. Those who aim at getting maximum results with a minimum of labour should see that each stock on nine or ten frames has about 30 lbs. of sealed stores at the end of this month. Given ample stores, a vigorous young queen, and a well-protected hive, bees invariably manage their own affairs, and come out stronger the following May than those that require nursing with candy or dribble feeding with syrup in spring.

Fine roofs should be made safe against any possibility of leakage during the coming winter by painting with good lead paint. Any roofs showing traces of shakes or rents should first get a heavy coat of paint, then a sheet of calico or other similarly thin cloth should be pressed and rubbed on to the fresh paint, and after a few days drying, paint over the cloth; two coats of good lead paint over the cloth forms a reliable protection against leakage.

Wasps are not so plentiful as we have often experienced at this date. It is, however, advisable to keep up a continual war against this enemy by destroying all nests as they are found, and by placing traps with water sweetened with jam, or light beer sweetened with sugar, in wide-mouthed bottles near the hives. For destroying the nests there is nothing to equal cyanide of potassium in a strong solution, which may be applied by winding a piece of woollen cloth or a piece of tow on the point of a pliable stick; insert it in the solution then into the passage to the nest. If the nest can be reached it may be dug out and broken up in five minutes after inserting the plug damped with cyanide. There is no danger of being stung by the wasps returning to the nest. The cyanide may also be applied by placing a piece of the crystal about the size of a shilling well into the entrance, and to hasten its action throw a little water in after it; in this way the combs may be safely dug out the following day. The destruction of a nest should never be considered complete without destroying the combs, as if they are left a considerable number of queen wasps may escape to give trouble the following year.

In late districts bees in fixed comb hives that are usually smothered with sulphur may be driven about the middle of the month and utilised to strengthen colonies in frame hives that are too weak in bees.

MARKETING HONEY.—This is a very important part of the beekeeper's care, and it is the apt in which for lack of business aptitude so many fail. It is only by co-operation and turning out the article in the best possible manner and in large quantity in the best consuming centres that maximum prices can be obtained. It is here the great advantages of forming associations of beekeepers come to the relief of the small producers. The large producer is generally a person who started in a small way and worked up gradually and formed connections with reliable merchants who went on getting his annual crop of either sections or run honey as the seasons come round. The crop of sections is considerably under average in quantity this year, and it is generally expected that prices will rule higher.

PETER BROCK.

Fairview, Enniskillen.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener and Forester to Lord Carew, Castle Boro', Clonroche, Co. Wexford.

THE end of the summer is upon us, although with good weather the garden is at its best; many good things must be noted for our guidance before they pass out of flower. The stocks of summer bedding plants, mostly rooted cuttings now, must be grown as hardy as possible, and the more tender plants will be gradually brought into the warmer houses as the days get colder and the atmosphere more damp. Towards the end of the month, and in any case before frosty nights come, stock plants used in the summer bedding, and which will be needed again next season, must be carefully lifted and brought into a cool house and sprinkled overhead for the following week during sunny mornings to keep them from flagging; most of these will have been plunged in pots, and they can be taken out without unduly disturbing the beds, so as to leave the rest of the plants as long as the frost permits. Where Begonias are used, especially named varieties, it is well to run a light covering over them when there is danger of frost. A light frost may cut the tops of the plants, but if carefully lifted at once, and the bulbs with some soil and roots attached left to dry slowly in a dry airy shed or greenhouse for ten days or so, they will not be damaged for another year. After the tops have partly decayed, the stems can be cut off to within two inches of the bulbs and the bulbs put in trays and stored in a cool, dry, frost-proof place.

Look over all the plants for spring bedding which should be done, if possible, early in October, to enable these plants to make new roots and establish themselves before colder days and nights with rough winds, rain and frost are upon them; all bulbs should be at hand, as this work must be done quickly as soon as the summer plants are done. If the soil is in good heart no manure will be necessary, but where Wallflowers are planted, some well-rotted and short farmyard manure should be dug in the beds; in some cases it is necessary to remove a portion of the old soil and replace with an equal quantity of new loam or old enriched potting soil, thoroughly mixing with the soil left in the beds; plants must vary according to situation and taste. Undoubtedly the wallflower in the beautiful varieties now in cultivation is the most popular of spring bedding plants, but these are usually planted in masses alone. Where *Myosotis*, *Aubrietias*, and other dwarf plants are used, *Hyacinths*, *Tulips* and the early *Narcissus* may be planted through them with a much better effect. Where masses of *Narcissus* are used, the large trumpet varieties are best, but for planting through a bed of dwarf plants I prefer the small cupped varieties, of which *Stella Superba* and *Bari* Conspicuous are the type which I mean. It requires a nurseryman's catalogue to enumerate the varieties, many of them very cheap and within easy reach of anyone who has a garden. Do not make the mistake of thinking the expensive varieties are the best. The price is usually regulated by the scarcity of the variety, and it takes some years to get a lot of bulbs from what was probably only one bulb in the beginning even in the most expert hands. Usually it is not

necessary to water these plants, but if the Wall-flowers, &c., are not well rooted, or have been transplanted from their original seed bed, it would be wise to spray them over if the autumn sun shows itself. Sometimes we have very bright days early in October, especially after a night's frost. Summer *Chrysanthemums* which have not finished flowering may be well watered, lifted, put into boxes, and placed under glass in some corner, when a useful lot of flowers may be got for cut flowers; the earlier flowering plants in pots must be brought under glass as the petals begin to show themselves or the blooms will damp. All the main batch of *Chrysanthemums* should be put in the greenhouse at the end of this month; between the last day of September and the 7th October I consider a good safe time, provided no plants have big developed buds; these are always put into safety whenever they are ready.

Double *Violets* should be in their winter quarters by the third week of this month. Plants so close to the top of the frame that the leaves touch the glass when first planted, and thoroughly soak with water after planting. Remove the lights altogether unless frost is expected, and even then leave a little air on at the back of the frame. Where damping is troublesome during the dull winter days, a covering of sharp sand between the plants and put over the whole bed will be found a help; the plants are easier to keep clean, and the sand passes away all surface moisture down to the roots. Often trouble with *Violets* is caused by the roots being dry and the leaves and flowers hanging wet with fog, &c. I would also advise trying a few plants in pots, especially the more shy bloomers and the Double White. I could never get a crop of Double White *Violets* until I started to grow them in pots. Of the varieties I find Marie Louise still hard to beat, but Mrs. J. J. Kettle, one of the newest varieties, is very good, quite distinct from any other Violet and decidedly the sweetest Violet grown. Mrs. Higgins is another variety, but although we are pleased with it, it is early to say much about it. Mrs. J. J. Astor is good, but I have been unfortunate in that several stocks from different sources developed red spider, and I promptly burnt the whole batch.

When red spider appears on *Violets* I never found any remedy except to burn the plants and get a new stock from a clean source. This does not happen unless faulty cultivation has been carried out, but to introduce this pest into a clean stock would be fatal among the other doubles. Lady Hume Campbell is lovely in colour, but short in the flowerstalk. De Parma and Neopolitan I do not like; they do not give me so many flowers or so good as the other varieties I have named.

Where single varieties are grown in beds it is, I think, better to grow several beds and two or three varieties. Princess of Wales is still the best for size and colour if done well, as it does on some soils, but the Czar follows it, and gives flowers in mid-winter if the weather is at all mild, and a few *Violets* then are worth much more than a plentiful supply when other flowers are more plentiful. Admiral Axellan is of reddish colour; it never flowers freely with me. Luxonne is spoken of very highly, but I have not grown it. It is safer to grow a variety which does well in

your own garden than another which grows well in your neighbour's garden. There is often a reason which is hard to find. Try all new things a year before committing your old friends to the rubbish heap.

Cyclamen should be brought into the greenhouse at once, and a temperature of at least 55 maintained on cold nights until the middle of winter, when another drop of 5 to 50 will do in cold weather. Avoid much fire heat, and when first brought into the houses keep the stages damped in the mornings. A trellis stage is an abomination for *Cyclamen* or for any plant except when in flower. Cockle shells are clean, but not always obtainable; of course they must be crushed for the job. Small clean gravel is also good, and the best plants grown for Covent Garden stalls are grown with coal ashes on benches. Watch the earliest potted bulbs for forcing, and if roots have been formed, shake the pots clear of ashes, and put in a cold frame until far enough advanced for the forcing house. Any flowering shrubs—*Deutzias*, *Lilacs*, double flowering *Cherries*, *Prunus floribunda*, &c.—that are to be lifted and placed in pots for growing in the greenhouse in the spring should be well watered and put into pots at the end of the month, sprinkled overhead and encouraged to make fresh roots before the leaves fall.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

EARLY and mid-season varieties of apples and pears should be gathered during this month as soon as the stalk parts readily from the spur without breaking, but the late kinds should not be gathered until October, and even then they should be allowed to hang on the trees as long as possible. Sometimes the whole crop of a tree is gathered because a few are dropping, but it is better to lose a few in this way than to pick before the fruit is perfectly fit, as fruit gathered too soon always shrivels badly long before the proper season to use it arrives. Early cooking apples, such as Lord Grosvenor, Grenadier, and Early Victoria, should be disposed of as soon as possible, as they only lose weight and quickly become spotted if stored. The same applies to early dessert kinds, such as Beauty of Bath, Lady Sudeley, and Irish Peach. Early pears, too, should be closely watched, as they will keep but a very few days when mature, and where marketing is practised, these should be packed a few days before they are quite ripe. If exhibition fruits are required the trees should be gone over carefully, and a small piece of an old straw-berry net should be fixed under each of the very best specimens to catch them if they fall. These will swell considerably when the rest of the crop has been picked off. Never pick for storing unless the fruit is perfectly dry, for the skin is much more easily bruised when moisture is adhering to it. Provided that apples are quite dry when picked, there is nothing against storing them in heaps on the fruit-room shelves, or even on the floor of a cool cellar, but they must be placed in position by hand carefully, and not rolled out of the basket.

STRAWBERRIES in established beds should be kept clear of late runners, and the ground between them hoed whenever dry enough. A mulching of short manure if available will be of great benefit to them. The present month is a good time to plant new beds, so that the young plants will be well established before winter sets in. Varieties of vigorous habits, such as Royal Sovereign and Bedford Champion, should be given plenty of room, placing the rows 30 inches apart, and allowing 2 feet between the plants in the rows, while those of a smaller habit of growth only need 2 feet between the rows and 18 inches from plant to plant. Where strawberries for preserving are in demand, the variety *Vicomtesse H. de Thury* will be found to give an enormous crop of rather small fruits which, being sweeter than most kinds, will not require so much sugar in jam-making.

Wall fruit trees that are still carrying crops of fruit should not be allowed to become dry at the root or the fruits will be deficient in size and flavour, and, moreover, in the case of stone fruits, would be very liable to crack in the event of heavy rains occurring. Late peaches and nectarines should be well protected from birds, which are unusually troublesome this season. Traps should also be provided for earwigs. Short lengths of broad bean stalk inserted amongst the branches are very effective; these should be blown through into a tin containing a little paraffin each morning. As soon as these trees are cleared of fruit pruning should take place, and all superfluous shoots removed, enough only being left at the proper distance apart to furnish the wall space for next season. As the work proceeds these should be loosely tied in their places, thus furnishing a guide as to the number required, and also preventing the shoots from becoming bent or crooked, a state of things which it is not easy to rectify after the wood has ripened. Trees that have made gross unfruitful wood during the season should now be marked with a view to lifting or root-pruning them later on. The former operation should be carried out before the leaves fall, as these will encourage the formation of new roots before winter, and this will enable the trees to carry a crop of fruit the following year, although the advantage of lifting the tree will be more fully apparent the second season after. Root-pruning can be done at any time during the winter. This consists of taking out a trench round the tree at about 4 feet from the stem, and cutting with a sharp knife all thick roots and those growing in a downward direction, at the same time taking care to preserve all fibrous roots, and to replace these at their proper level when filling in the trench again.

No time should be lost now in making out lists of trees that are required for planting during the coming winter. For those starting to plant an orchard the following six dessert apples, in their order of ripening, can be recommended:—Beauty of Bath, Worcester Pearmain, James Grieve, Cox's Orange Pippin, Barnack Beauty, and Lord Hindlip. Six good cooking apples in their order of ripening are:—Grenadier, Loddington Hambling's Seedling, Lane's Prince Albert, Bramley's Seedling and Newton Wonder—which last variety may be described as the best "general purposes" apple we have, a vigorous tree, bearing large crops of handsome fruits, which keep late, cook splendidly, and are quite palatable in a raw state.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany, Dunsany Castle, Co. Meath.

ONIONS. During this month the spring-sown onions should be pulled, dried, and stored. Where a large quantity of onions are grown, the bulbs may be removed quickly from the soil with a sharp Dutch hoe. Work the hoe well under the onions along the rows, the roots will thus be cut without harming the bulbs. If the weather be dry, allow the crop to lie on the soil where they can be turned occasionally, and thoroughly dried before being stored. If the weather is wet remove the bulbs to an open shed, and lay them thinly on the floor to dry. Onions are best tied in bunches and suspended to the rafters of a cool, dry shed, where frost is excluded.

CELERY. This important crop will now require moulding-up. This work should only be done in dry weather. Remove all short stems or leaves from the base of the plants, and tie loosely with raffia. The soil placed about the plants should be well pulverised, six inches of soil will be sufficient for the first moulding up.

TOMATOES. Cut away all excess of growths from tomatoes, and remove all small fruits; any further stimulant will be of little use to plants grown in the open. Late tomatoes grown under glass may still have some diluted liquid manure to mature the crop.

TURNIPS. Seeds of this vegetable if sown after the first week of this month fail to develop their roots well, but a good return is obtained from the tops as a green vegetable in spring. Turnips sown in August may require some stimulant to quicken the growth, but a free use of the hoe on rich soil is better than artificial manure to any growing crop.

GREENS. A good breadth of Savoy cabbage may still be planted; make the rows 18 inches apart and an equal distance between the plants. All the Brassica family for winter and spring use are growing fast. Where late spring and early summer broccoli are grown, an application of salt (agricultural), 1 oz. per square yard, will help to harden the stems of the plants, and make them more fit to withstand the winter. When cauliflower are ready, cut the heads and pull up the plants, not leaving them to exhaust the soil with useless growth of leaves.

LEEKES. Where early leeks have been planted in trenches, they will now require moulding-up; a further planting may still be made early this month. Make the lines 18 inches apart, and place the plants 9 inches asunder in the lines.

DWARF BEANS. Dwarf and Runner Beans have been rather unsatisfactory owing to the cold weather in the early part of the season. Late sown beans are now doing well. Gather when large enough for use and the beans will keep fruitful for a longer period. Should the pods be left to form seed flowering ceases.

CABBAGE. Plants from July sowing should be planted into their permanent quarters during the second week in September. As nearly all cabbage grown for spring use are the small-growing kinds they may be planted 18 inches in each direction.

SALAD. Transplant hardy lettuce from the early August sowing, make the lines 15 inches apart, and the plants one foot asunder in the lines. A further sowing of any hardy variety of lettuce may be made early this month. Radish, mustard and cress may be sown at intervals to suit demand.

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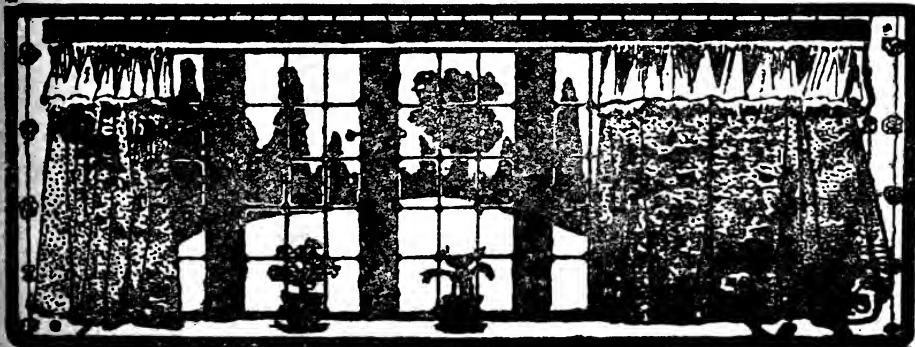
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Irish Gardening

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EDITOR—J. W. BESANT

The Moats at Aldenham.

THE illustration represents a part of one of the moats which surrounded a small manor house called Penn's Place, about 400 yards from the present Aldenham House, and which was demolished during the reign of Henry VIII. There were two rows of moats round the house, not for defensive purposes, but for the preservation of fish, which was specially required in olden days, owing to the strict observance of Friday and Lent fasting from meat, and to the fact that fresh meat was not obtainable in the winter as cattle were slaughtered and salted down in autumn. These moats were known as Fish Stews.

After the house was taken down no attention appears to have been paid to the moats, which were allowed to run dry, and they became filled up from one cause or another with trees and scrub which grew in and around them, giving the appearance of a small wood.

About 20 years since the late Lord Aldenham decided to have these cleared out, and the grounds round and about made attractive, and,

at the time of writing, this part of the grounds is amongst the most beautiful at Aldenham.

Two rows of *Cedrus Atlantica* were planted to commemorate the Diamond Jubilee of the late Queen Victoria, and these have now developed into fine specimens. Round the banks of the moats are a fine and rare collection of

Alnus, comprising nearly 30 different species and varieties. The banks are all suitably edged with water-loving plants such as *Phragmites*, *Carex*, *Cyperus*, *Bullrushes*, *Gunneras*, and hosts of other things of much beauty. Here and there are fine specimens of *Arundinarias*, *Berberises*, *Eulalias*, *Spiraeas*, *Pyrus japonicus*, &c., and in the water a very fine collection of *Nymphaeas* are flowering, as well as *Aponogeton distachyon*, *Calla palustris*, *Orontium aquaticum*, *Pontederia cordata*, *Sagittarias*, &c.

The font was brought from Venice about 15 years ago by Mr. Vicary Gibbs.

E. BECKETT.

Aldenham House Gardens.



A MOAT AT ALDENHAM.

Tuberous-rooted Ranunculuses.

By these we refer to the florists' varieties of *R. asiaticus*, known in the trade as Persian, French, Turban, &c. Flowering early in spring, no flowers can surpass them in brilliancy of colour: though they are, perhaps, somewhat formal in shape their neatness and beauty never fail to charm. The names by which they are generally known signify different races varying somewhat in vigour of growth and in the doubleness of the flowers. Each race includes various self-colours, and others have a ground colour, the margins of the petals variously tinted. For effect, the self-colours are most popular, and very striking they are when planted in masses. The practice of planting beds of these bright flowers is, perhaps, not so common as it once was before so many other spring bedding plants came into vogue. They are, however, extremely useful for planting in groups along the front of the herbaceous border, where, among other dwarf flowers of spring, they associate well and get that amount of shelter which their early flowering merits. It is a moot point whether planting should be done in autumn or spring, but on the whole probably the latter is the better time. In warm districts where the soil is light and well drained, good results follow planting in October or November, and the flowers are produced earlier, but in cold, wet soils the mortality among the tubers is heavy if autumn planting is followed. Growth is rapid after planting, and tubers put down in February will have pushed up their leaves in six weeks or so, and the flowers will follow in April or May, according to the season and time of planting. These Ranunculuses are moisture lovers, but will not tolerate stagnant moisture, therefore the soil must be well broken up and aerated, and, if poor, a little fresh loam or old potting soil passed through a screen should be added. Here we follow the custom of planting in groups along the front of the border, opening holes about a foot square and nine inches deep at suitable intervals. In these we place about six inches of loam or other soil as described above, and over that an inch of sand. The claw-like tubers are gently pressed into the sand and then covered with a couple of inches of soil, which is gently pressed down, the surplus soil excavated being scattered through the borders.

No further attention is required unless abnormally dry weather should prevail, when watering may be done, but this is rarely necessary so early in the year. When in flower, some of the stronger growers with large double flowers may require a few slender twigs placed against the flower stalks to prevent them being knocked down by rain.

GROWER

Chrysanthemum maximum.

ANNIE HOUSE.

This is the latest variety to be added to the collection here, and although many other good ones are in cultivation, there is ample room for Annie House.

The flowers are not quite so large as in some varieties, such as *Etoile d'Anvers* or *Mrs. C. L. Bell*, but they have a double row of florets which give the heads an appearance of solidity and purity exceeding, I think, any other variety I have seen. The flowers are produced in quantity over a long period, and are of exceptional value for cutting. A group in the herbaceous border will be a decided acquisition, but some plants should also be grown in reserve quarters for cutting.

B., Dublin.

Mirabilis jalapa.

THE "MARVEL OF PERU."

This has been one of the most interesting plants flowering in September, and is worth attention by those who like variety in their gardens. It is a native of Mexico and Central America, and in cold soils may require lifting and storing, as with Dahlias, the roots being fleshy and tuberous and liable to decay in winter. In light friable soils the plant seems perfectly hardy, and in many parts of Ireland should thrive admirably. Often even in cold districts a covering of ashes is sufficient to preserve the roots from injury. It is also possible to sow seeds in early spring in heat, planting out when warm weather ensues, good plants resulting the first year. Where the old plants can be preserved, however, much trouble is obviated. The flowers are produced in clusters at the ends of the leafy branches, and may be white, yellow, crimson or blotched. The one I most admire has rosy crimson flowers, and is quite a showy plant. Although frequently spoken of as opening its flowers in the evening, this is not a rigid rule, as many flowers are open during the day and attract considerable attention. MIRABILIS.

Single China Asters.

THESE are most valuable September flowers, and should be grown by all who require many flowers for cutting or showy beds in late summer. Their robust constitution and the ease with which they can be raised are also points in their favour. Seeds sown in a close cold frame in March will produce good plants for planting out towards the end of May. Very

pretty effects can be got by planting beds of one colour, or if planted in a border, broad irregular masses look well. Broad belts planted in open places in the front of shrubberies have a fine effect, and they may also be planted between dwarf shrubs, where they succeed admirably, and seem to benefit by the shade from the shrubs. For bold masses in the herbaceous border they are very useful, as they can be planted after early flowering bulbs, and make fine breaks of colour in the borders at a time when yellow flowers are inclined to preponderate.

In all cases the soil should be enriched by the addition of some light thoroughly decayed manure before planting, and if dry, should be well soaked before the plants are put in. During dry weather the soil should be kept uniformly moist by watering, as best results are got by keeping the young plants growing freely.

In my experience the single China Asters rarely suffer from diseases or pests which frequently afflict the double strains and cause grievous disappointment. It is advisable, however, not to grow the plants in the same beds year after year, but to change them annually if possible.

Several colours are obtainable as in the doubles, the best in my opinion being dark crimson, white, and pale blue. A good strain has broad-petalled ray florets and a comparatively small "centre."

The strain known as Southcote Beauty I do

not admire, the narrow thread-like ray florets detracting enormously from the colour effect of the flowers, and adding nothing to the elegance of the plant as a whole.

J. W. B.

Hydrangea Sargentiana.

THIS is perhaps the most remarkable of all the Hydrangeas, and is in many respects a noteworthy shrub.

In many of the more favoured parts of Ireland, such as Wicklow, Cork and the West, it should develop into a most striking and interesting specimen. Our illustration of a plant growing in the collection at Glasnevin shows that in the by no means favoured climate of that district it has yet some claim to attention from lovers of shrubs. The most remarkable feature of the plant is the huge size of the leaves on the barren or non-flowering shoots. These are up to 10 or 12 inches long and 7 or 8 inches wide, dark green and densely hairy above and paler and bristly below. The shoots too are thickly furnished with hairs



Photo. by

HYDRANGEA SARGENTIANA
In the Botanic Gardens, Glasnevin.

(R. M. Pollock)

and bristles, giving the plant altogether a remarkable appearance. On the flowering shoots the leaves are smaller, but the large flat corymb of flowers compensates for this. The fertile flowers are lilac-coloured and occupy the centre of the corymb, while an outer fringe is formed by the sterile flowers composed of large showy petals of a pale pink colour.

HORTENSIS.

Commelina cœlestis.

This is a very old inhabitant of gardens, and desirable on account of its lovely sky blue flowers, which are produced through summer and on into late autumn. The plant reaches a height of about 2 feet, and prefers a light warm soil, being doubtfully hardy in heavy cold soils: a narrow border at the base of a wall or in front of the greenhouse suits it admirably, but elsewhere it flourishes quite well, providing the soil does not become too cold and wet in winter. The roots are tuberous, and if difficulty is experienced in preserving them in the ground through winter they may be lifted and stored in dry sand and kept away from frost till spring, when they may be replanted.

HORTUS.

Clematis Jouiniana.

For late September and early October flowering this is a robust-growing Clematis of great value in our gardens for clothing arbours, screens, fences, and tree stumps. Its parents are *C. Vitalba* and *C. Davidiana*. In some gardens this plant is grown as *Clematis grata*, a name which properly belongs to quite a distinct and little known species native of the Himalayas and China.

The flowers of *C. Jouiniana* are white, suffused with a mauve tint, freely borne in long inflorescences up to some 2 feet long, made up of terminal and axillary corymbs. Cuttings root readily in a cold frame, and layers also provide a ready means of propagation. In a soil abounding in lime, notably old mortar rubble, the roots of the plants revel and produce luxuriant growth. During February or early March ample pruning is beneficial and oftentimes very necessary.

A. O.

Hydrangea paniculata.

THE variety *grandiflora* is so much grown in our gardens to-day we are apt to neglect the species, which in some respects is a better garden plant, notably from the fact that it flowers later. Allowed to grow freely with little pruning it forms a large spreading shrub 10 feet or more in height and as much in diameter. Pruned hard in spring and liberally cultivated, a dozen or more plants of this hardy Chino-Japanese shrub make a beautiful lawn bed for August and September flowering. The pyramidal inflorescences are composed of large sterile and smaller fertile flowers, white, with a faint creamy tint, followed when the flowers are old with a pinky tinge at the edges. Soft cuttings of this *Hydrangea* root readily in a propagating frame during August.

Camassia Leichtlini *

A native of British Columbia and California belonging to the Order Liliaceæ, this is a very effective, handsome bulbous plant for the border. It is a tall and vigorous grower, the flowering stems often attaining a height of 4 feet, with 9 to 12 inches of the apex clothed with creamy-white flowers. The flowers are freely produced throughout the summer months, and besides being objects of beauty in the border are excellent for cutting.

This plant flourishes in most garden soils, but does not do well in wet heavy soil, and should not be planted in cold, exposed positions. Although the flowering spikes are tall, staking is seldom necessary, except when they are too much exposed to winds. Propagation can be effected by seeds, sown as soon as ripe in summer, or kept over until spring. The seeds should be sown in light sandy, well-drained soil, and the seedlings not disturbed for a couple of years. As the full-grown bulbs produce offsets, the removal and replanting of these offsets will be found the most expeditious method of raising a stock of flowering plants. This work may be done any time from July to October.

F. ROSE.

Ceratostigma Willmottianum.

THIS is a new Leadwort introduced from China by Mr. E. H. Wilson, and named in compliment to Miss E. Willmott, in whose garden the first plants flowered in this country. *C. Willmottianum* flowers freely from August onwards until cut by frost, which in sheltered positions may not be until November or December. It is also valuable cultivated in pots for the cool greenhouse, growing the plants outside during the summer, and bringing them under glass when flowering commences. The colour of the blooms may be likened to the popular *Plumbago capensis*, the shade of colour often being described as plumbago-blue, the subject of this note having naturally a slightly deeper shade out-of-doors. It is a much more robust species than the older plant, *Ceratostigma plumbaginoides* (syn. *Plumbago Larpentæ*), which was first introduced from Shanghai in 1846. Plants in Miss Willmott's garden have reached a height of 5 feet, but with us at Kew the growths were cut back last November. The plants, however, pushed up young shoots freely from the base in spring, and are now very bushy plants, 2 to 2½ feet in height. The soil should be well drained, and comparatively light, a mixture of peat, leaf-mould and coarse sand mixed with most garden soils being suitable. Cuttings made of

* Photograph sent, which we hope to reproduce later on.—ED.

the young shoots root readily in a propagating frame with a little bottom heat during the summer, a larger percentage rooting than later when the growths are firmer. *C. Willmotianum* should be a welcome addition to our gardens where natural shelter can be given, and in the mild climate of Ireland and the south and west of England. It is noticeable at this season that though a much smaller plant, *Ceratostigma plumbaginoides* has larger leaves with a reddish autumn tint, while those of the new species are smaller and green.

A. OSBORN.

Pinus

Monticola.

THIS is one of the handsomest of the pines for ornamental planting, and may probably in time come to be considered as a possible timber tree. In its native country, Western North America, it yields valuable timber, and reaches a height of 125 feet, but so far it does not seem to have been planted under forest conditions in this country. Planted in an open position growth is fairly rapid, as may be judged from the specimen illustrated, which is growing in the Arboretum of the Botanic Gardens at Glasnevin, and has been planted about ten years. Cones are produced early, and contain good seeds, young plants having already been raised from the specimen seen in our illustration. Doubtless, planted under forest conditions, growth would be more rapid still. It is one of the five-leaved pines, and is allied to *P. Strobus*, but differs in the shorter leaves and downy shoots.

ARBOR.

Anemone rupicola.

ALTHOUGH normally, I believe, a spring or early summer flower, this beautiful Windflower has during September produced a number of its delightful white blooms from a strong plant put out from a pot some time back in the summer. It is in general appearance somewhat like the

strong growing form of *Anemone sylvestris*, but the flower stems are stouter and the flowers less nodding than in that species. The basal leaves are three-lobed and have long stalks, while the flower stalks reach a height of a foot or more. The plant is flourishing in a mixture of loam and peat in half shade—that is, in a position facing east, but not shaded overhead. Should it survive the winter safely there is every prospect of a fine display next year. It is a native of the Himalaya.

PLANTSMAN.



Photo by

PINUS MONTICOLA

(R. M. Pollack)

In the Arboretum, Glasnevin.

Polygonum cuspidatum.

A NATIVE of Japan, this is

one of the handsomest herbaceous plants for the wild garden or water side. It must be allowed plenty of room for development, and should be planted where its wide-spreading propensities will not result in the extinction of weaker, but not less worthy, plants. The tall arching stems, bearing very pretty leaves with the characteristic long drawn-out point, grow from 6 feet to 8 feet high, and are particularly effective in September when furnished all along the upper portion with pendent racemes of white flowers. By the side of a pond

or stream an ample clump is most effective, and even when the stems are leafless in winter they still remain effective in their warm ruddy brown colour. In these days, when outdoor gardening has become so popular, every attention is merited by plants which can offer some attraction over as long a period as possible.

KNOTWEED.

Rheum palmatum tanguticum.

To those who like stately plants, but which are not quite suitable for ordinary border decoration, I can heartily recommend this handsome "Rhubarb." The deeply cut five-lobed leaves are large and handsome, when the plant is growing strongly, covering a considerable area. The tall flower-spikes pushing up among the leaves attain a height of 6 feet or more; while bearing its spikes of creamy white flowers, the plant is very striking, but more so when these are succeeded in autumn by red fruits. An isolated position in deep moist soil is best, and in such a position the highest pitch of development may be expected.

B.

Double White Rockets.

In a previous issue of IRISH GARDENING allusion was made to the beauty and value of the double Rockets. For the herbaceous border they are extremely valuable not alone for their handsome spikes of white or purple flowers, but also for their fragrance. In the present issue is shown a group in a border, and it will do more to convince readers than any amount of writing. Plants which were divided up after flowering have now made good growth, promising well for next year. If after flowering the plants were transferred to the reserve garden to make room for annuals they may now be returned to the borders, as most annuals have had their day, and may be pulled up and replaced with Rockets and other spring and early summer flowers, including bulbs in variety. Thus the borders are kept constantly full and by cultivation always rich and capable of supporting a large number of plants.

Notes on Shrubs at Rostrevor House.

In our last issue we unfortunately omitted to state that the above article was from the pen of Sir John Ross of Bladensburg, K.C.B., K.C.V.O., to whom we are much indebted for so freely contributing his experiences in acclimatising so many rare and beautiful shrubs.—Ed. I. G.

Æthionema cordatum.

This species is unique in the colour of its flowers, which are of a soft yellow, most of the other species, with the exception of *A. ibericum*, being pink in various shades.

The species in question is free-flowering and quite hardy in a sunny position in gritty soil, but is rather loose and ragged in habit if left to grow naturally. Seeds are freely produced, and form the readiest means of propagation. Ripening in summer, they should be sown at once when gathered and will be ready for handling a few weeks after. They should be pricked out singly in small "thumb" pots, and when a couple of inches high remove the point of the shoot. This will induce the formation of several branches which, when two or three inches long, should be pinched again, and the result will be nice bushy little plants by the end of summer. Planted in autumn or spring, each shoot will then produce a nice corymb of flowers, and if planted among the pink-flowered species a very pretty effect is obtained.

GARDENER.

Potentilla fruticosa Veitchii,*

THIS seems now to be considered the correct name of the plant put into commerce some years ago by the late firm of James Veitch & Son, and to whose energetic collector, Mr. Wilson, now of the Arnold Arboretum, we owe its introduction. Presumably all the white forms are now included under *P. fruticosa Veitchii* except *P. f. leucantha*, since Mr. W. J. Bean, in "Trees and Shrubs, British Isles," does not mention any others.

There is, however, some variation among them, and one particularly handsome form was collected by Mr. W. Purdom, now of the Chinese Forestry Service, under No. 819. This form is always the first to flower, commencing early in May and continuing well into summer. The pure white flowers are large and very freely produced, and the bush at present (May 22nd) is very showy, while within a few yards of it another of Mr. Purdom's plants (No. 396) is only half in leaf and furnished with unopened buds. Elsewhere about the grounds older bushes of *P. Veitchii*, *P. f. alba*, and *P. f. manschurica* are only opening a few flowers, so that Mr. Purdom's No. 819 is distinctly earlier than any of the others, and has been consistently so for the years it has been grown here.

J. W. B.

* See illustration in July number.

The Arboretum.

With the advent of October the planting season may be said to have arrived again, and henceforward for some months trees and shrubs of one sort or another may be got out into positions already chosen for them. In a well equipped arboretum more or less planting is always going on, for, as pointed out in a previous article, rare and doubtfully hardy plants are grown on in pots in the nursery until such time as they are thought strong enough to risk out. Early and late autumn, however, are the months when the bulk of the hardier kinds are planted, thus giving them a chance to get established ere the soil becomes too cold and the biting winds of late winter and early spring render the chances of success less probable.

Evergreens are usually dealt with first, as their leaves are always more or less dependent on the roots for support, thus if transplanted early they have the best chance of becoming quickly re-established, and also it is unsafe to move deciduous trees or shrubs while the leaves are still fresh and green. The best time to move the latter is when the leaves are turning in colour and beginning to fall.

There are many beautiful evergreens cultivated in our gardens which from time to time have been introduced from other lands, but none are more generally useful than the few natives of the British Islands, namely—holly, yew, box ivy, and, of course, Scots pine among the larger growing Conifers.

Our gardens owe much to the holly and yew, for as evergreen hedges they are unexcelled, while as isolated specimens few trees are more effective or give a wider range in colour and habit. The ivy, too, is unsurpassed as a hardy evergreen climber, requiring no artificial support, and presenting innumerable variations in shape of leaf and colour. Young plants of holly are most easily dealt with, and should be preferred by beginners to larger specimens, as the latter do not transplant well. Most of the garden varieties of holly are, according to the best authorities, of hybrid origin; the common species *Ilex aquifolium*, with *I. Perado* and *I. platyphylla* being concerned. A useful selection to begin with might include *camelliaefolia*, a beautiful species with

glossy green leaves and few spines; *donningtonensis*, with purplish bark and dark green, rather narrow leaves; *Hodginsii*, a fine robust variety with large dark green leaves, and usually bearing a good crop of berries; and *Wilsoni*, with very large and spiny leaves, making a fine specimen; these are all green-leaved varieties. Of variegated kinds there are several very handsome varieties of which I would choose *Silver Queen*, *Golden Queen* and *Golden Weeping*.

The yew, *Taxus baccata*, has been fairly prolific of varieties, and although one of the most adaptable plants as regards clipping never looks

better than when allowed to take a natural shape. It is extremely hardy and forms a most effective screen and shelter. The following are some of the best and most distinct varieties:—*Dovastoni*, with horizontal branches, and the branchlets pendulous; a most effective variety when allowed room to develop; *fastigiata*, the Irish yew, a variety of columnar habit, which has been much planted and is a most effective and pleasing evergreen; *aurea*, a variety with golden yellow young leaves; and *recurvata aurea*, with the ends of the branches curved upwards in a rather pleasing manner. Most nurserymen catalogue a large number of varieties from which a selection can be made, but most people will find three or four sufficient.

The ivy, botanically called *Hedera helix*, is, perhaps, the most useful evergreen in cultivation for clothing a shady wall where few other things of



Photo by]

RHEUM PALMATUM TANGUTICUM

[S. Rose

(See page 150.)

proved hardiness will grow. A very fine effect can be produced by planting a selection of varieties varying in shape and colour of leaf. Varieties are very numerous, but the following can be recommended to beginners:—*H. helix dentata* is the largest leaved of all, and makes a handsome object when allowed freedom of growth; a variegated form of this, with the leaves blotched with creamy white, is most effective; *palmata* and *palmata aurea* are varieties attractive in leaf and colouring; *canyonwoodiana*, which is probably the same as *digitata*, is a favourite on account of its elegantly cut leaves; *lucida* has glossy green leaves and makes an attractive covering, while *marginata aurea* and *marginata rubra* are attractive in the bright winter colour of the leaf margins.

Of introduced evergreens perhaps none has done better service than *Cupressus lawsoniana*

and its many varieties. Introduced from Western North America over sixty years ago, it is now represented in gardens by scores of varieties, many of rare beauty and particularly valuable for their winter effect. Flourishing in most soils of average quality, it nevertheless dislikes a poor dry soil, and in such it should be watered and mulched with manure, unless means can be found to provide a considerable quantity of better class soil. Varieties are so numerous that only a few can be mentioned here: *Argentea* is a beautiful silvery glaucous form of much beauty in winter, a form called *Silver Queen* being almost if not quite similar; *gracilis aurea* is a pretty golden pendulous variety, and *lutea*, of more erect habit, makes a striking object in winter; *Allumi* is a handsome variety of globose habit and of a bluish colour, while *Fraseri*, of similar colour, is more spire-like in habit; *erecta viridis*, a columnar variety, is a very striking evergreen, while, by way of variety, *nana* forms a low round bush suitable for a restricted space; *filifera*, with pendulous cord-like branchlets, is most pleasing and effective; while *intertexta*, with a distinct mode of branching and rather weeping branchlets, is immediately noticeable among other varieties.

There is, of course, a large number of evergreens other than Conifers, mostly introduced, and they present enormous variety in habit and appearance. The owner of extensive ground may be relied on to suit himself from among the comprehensive collections cultivated by nurserymen, but the man with restricted space, who still requires a few evergreens for shelter and winter effect, might try some of the following:—*Euonymus japonicus pulchellus*, *Euonymus radicans* *Silver Queen*, *Osmanthus aquifolius*, green and variegated; *Aucuba japonica*, green and variegated; *Skimmia* in variety, *Berberis buxifolia*, *B. Darwini* and *B. stenophylla*, *Cotoneaster buxifolia* and *C. rotundifolia*, *Veronica Traversii*, *Olearia Haastii*, *Escallonia macrantha*, *Gaultheria Shallon*, requiring a soil free from lime; Heaths in variety, all the better for some peat in the soil and disliking lime, with the exception of *Erica carnea*, one of the most beautiful, which flourishes in loam, and most of the varieties of *E. mediterranea*, seem to be fairly indifferent to lime in the soil. The above is merely a selection from the many available evergreens, and would serve as a beginning to be added to or reduced as found necessary.

In last month's notes allusion was made to the beauty and usefulness of the Fuchsias as late flowering shrubs, and I would again like to emphasise what was said then. All through September *F. macrostemma*, on a wall, has been most beautiful and effective, with its branches produced at right angles to the wall and furnished with graceful slender scarlet flowers. The effect of this particular plant is heightened by a fine plant of *Solanum jasminoides*, which is flowering very freely a few yards further on, so that as one approaches by a walk parallel to the wall the scarlet *Fuchsia* and white *Solanum* are seen in contrast.

A pretty interesting, though not showy, wall shrub flowering in September is *Bursaria spinosa*, a native of New South Wales, requiring wall culture in most districts, but would probably be quite hardy in the south and west of Ireland as well as some parts of the north, where Sir John Ross of Bladenburg succeeds with so many rare

shrubs. It is an evergreen with narrow leaves and spiny branches, the flowers being produced in panicles at the end of each branch.

At the beginning of these notes allusion was made to the box as a native evergreen, and this is true of England, but whether recognised as a native in Ireland I cannot say. Generally speaking, box is not so much in request for ornamental planting as many other evergreens. The common species *Buxus sempervirens* is the best known, and has produced more varieties than most people are aware of. For practical purposes, however, a few only will suffice. I do not care for the variegated forms, preferring those showing distinction in habit and shape of leaf. The following may be recommended:—Variety *latifolia*, with leaves very much wider than in the common form; *longifolia*, a rather graceful form, with long narrow leaves; *myrtifolia*, a dwarf variety, with narrow leaves; *pyramidalis*, a stiff erect variety; and *rosmarinifolia*, a slow grower, with long narrow leaves and close habit.

Buxus balearica, from the Balearic Islands, is a handsome shrub with stout branches clothed with leathery dark green leaves, distinct from those of the common box. This makes a fine dense shrub in Ireland and forms an excellent screen or shelter, growing rapidly and remaining well furnished at the base. *Buxus Harlandii* is a Chinese species of dwarf habit, and may be used as a rockery shrub; the erect leaves are, so far as I have seen, usually of a pale yellowish green.

There are one or two other species of less importance.

B., Dublin.

Beekkeeping.

SEPTEMBER has so far afforded favourable weather for harvesting operations, but the temperature has been too low to permit bees to add to their stores. The majority of stocks, especially those headed by young queens, are strong in bees, and in districts within reach of heather or wild scabious are provided with from 25 to 30 lbs. and over of natural sealed stores, while in districts less favourably situated some stocks have required feeding to make up the deficiency. Bees are everywhere showing a disposition to settle for winter. Before packing and securing for winter finally, see that each stock has sufficient sealed stores, as it sometimes happens in the midst of plenty that a stock may not be so well provided for as some of its neighbours; in such cases a little equalising of stores may be a great benefit to all. In a hive containing nine or ten frames 30 lbs. of sealed stores will carry a stock safely through our hardest winter, and as a general rule stocks so provided in autumn make steadier progress and are earlier fit for supering than those requiring the aid of stimulating and feeding with syrup in spring.

Stocks should on the first favourable opportunity this month be prepared for winter. The ideal conditions for wintering are—plenty of bees, plenty of sealed stores, young queens, ample porous coverings over frames, double-walled or otherwise insulated hives with wind and water-proof roofs. Winter passage across the tops of the frames should be formed by laying four strips of wood about $\frac{1}{2}$ inch square and cut in lengths to reach between the second frame from the front

to the second frame from the back, so that the bees may be able to pass over the tops of the frames for food at times when they could not pass underneath. The quilt next the bees should be of jute, or what comes cheaper nowadays, may be obtained by cutting squares from a "Tate's" sugar sack, and for the second quilt there is nothing better than red-edged soft tar felting, well rolled and beaten with a switch to render it porous. Over this two or three empty Indian meal sacks, neatly folded, or a cushion of cork dust about 2½ inches in depth will make all snug and comfortable. Cast-off woollen clothes or other woollen material attracts moths, and attracts moisture, and does not make such a uniformly dry and clean covering as sacking material.

The C. D. B. hive and hives of similar construction with telescope lifts should have the lift reversed so as to form a double wall and insulate the brood chamber from the effect of winter storms. The porch should be removed from the body box and attached to the lift. Hives which are not fitted with telescoping lifts would be greatly improved for wintering by having the body box protected by tar felt, or a piece of cast-off linoleum would serve the same purpose. Changes of temperature in the hive, often caused by rain or sleet accompanied by strong wind, has a disturbing influence on bees, which tends to promote an extra consumption of stores and wear and tear of bee life. Straw skeps and other fixed-comb hives should be protected by straw hackles secured by iron hoops; care being taken to see

that no convenient ladder is left by which mice can reach the stands. Hives should be securely tied down to prevent them being blown over by storms. Long grass or weeds should never be tolerated near hives at any time, and especially during the winter it is essential to have the surroundings clear of anything that would retain moisture. On no account should bees be disturbed after being put right and tied down for winter. It may, however, be necessary to examine roofs to make sure that they are waterproof.

As soon as all danger of robbing is past the entrances should be opened to from four to six inches wide, according to the position of the hive; in exposed positions the lesser width is sufficient. The Swiss metal entrance should be lowered to the ¾ inch depth so as to exclude mice.

Crates and other appliances should be cleaned and stored for winter.

PETER BROCK.

Fairview, Enniskillen.

The Alpine Garden.

THE cheeriest sight in the rockery at present is numerous colonies of *Cyclamen neapolitanum*, both pink and pure white. It is a most accommodating species, flourishing practically anywhere—in grass, under shrubs, and clustered round the base of pine trees, &c. The number of flowers produced by one corn is really marvellous, and as the corns increase in size as they grow older, one, say, 8 or 10 years old, produces a dense mass of flowers a foot or more across, while others—3 or 4 years old, from seeds—must be carrying 30 to 40 flowers each, though I have not actually counted them. The

seeds, which are produced in fat round capsules, ripen in spring and early summer, and should be sown at once. They soon germinate, and should be left to grow on in the boxes or pans as long as the leaves remain on them. The following spring, when the leaves are beginning to grow, the little corns, about as big as peas, may be separated and planted either in other boxes or in a cold frame, where they may be left to grow for the next twelve months. At about two years old they may be planted out where they are to remain permanently. Flowering now in the last week of September and on into October, one need not enlarge on their usefulness, and in beauty will compare favourably with the choicest gems of spring and summer. Other species of *Cyclamen* flowering during the autumn months are *Cyclamen*



Photo lat

DOUBLE WHITE ROCKETS
Hesperis matronalis alba fl. pl.

[N. Rose.

men cilicium, with white flowers, *C. europæum*, flowering here at present with crimson flowers, and *C. latifolium* with reddish-purple flowers. I can heartily commend these autumn flowering *Cyclamens* to all who are endeavouring to keep their rockeries bright and interesting throughout the season. The autumn flowering *Crocuses* are also beginning to make a show now; some, of course, having been out some time. The *Colchicums*, too, so often called wrongly autumn *Crocuses*, are opening in the less conspicuous parts placed there on account of their unwieldy leaves in spring. A beauty, however, which is given a good position, is *C. speciosum album*, with large globes of the purest white. As the flowers appear now without the leaves, it is necessary to provide a groundwork to mitigate somewhat their naked appearance, and also to prevent the heavy autumn rains from splashing the flowers with soil. Here we use a little plant called *Helxine*

Solerolii, which belongs to the Nettle order, and comes from Corsica and Sardinia; it forms a dense, yet spongy, green mat, through which the strong flowers of the *Colechicums* easily find their way. It forms rather too thick a mat though for the true Crocuses, which have slenderer and less robust flowers.

A most delightful little plant which is opening its flowers just now is *Oxalis lobata*, a pretty little Chilian species, with lovely golden-yellow flowers. The plant matures its growth in the spring and early summer and then disappears for a rest until the flowers appear again in September, and will continue to open successionally for some weeks. Quite close to it another interesting and very pretty plant has commenced to open its flowers—viz., *Leucocum autumnale*, a charming little bulbous plant from the Mediterranean region. The dainty white flowers are produced on slender hair-like stems some 6 to 8 inches high, and in a sunny spot sheltered by a stone, and where the soil is gritty and never wet it is flourishing and increasing.

Among larger plants flowering now *Statice latifolium* is conspicuous with its wide spreading inflorescences of tiny flowers. It is a plant for the border, except where the rockery is large enough to hold plants that want so much room. *Sedum spectabile* is quite attractive now, and is a good plant, particularly if one can get hold of the true dark red form. *Gentiana asclepiadea* is very showy, but, again, cannot be recommended for a small rock garden.

While looking at the new rockery in St. Stephen's Green Park, Dublin, the other day, two plants attracted me particularly—one was *Campanula Warley White*, which I had not seen before, and I can only describe it as like a white form of *Campanula haylodgensis flore plena*. It will be a most attractive plant I feel sure when grown in some quantity. The other plant was *Viola cornuta thuringiaca*, a pretty form of the Horned Violet, having pretty blue and white flowers, and these in such quantity as to be conspicuous at some distance. All the plants on this rockery looked remarkably healthy and flourishing, and it has become quite a feature of the Park. B.

The Black or Berry-bearing Alder.

THE planting of *Rhamnus frangula* L. in coppice woods is recommended as being more profitable than other species. Even before the war the supplies of this wood for charcoal making were inadequate to meet the demand for smokeless powder, and prices reached from £10 to £11 per ton.

The most suitable soil is a moderately good loam, but it may be expected to thrive where the hazel grows well. Propagation is by means of seeds sown in boxes in a cold frame or in beds of well drained soil out of doors. The young plants should be placed six inches apart in rows one foot apart, and when about nine inches high they should be cut back to induce branching near the ground line. When cutting a plantation, care should be taken to cut the branches as close as possible to the root stock.—*Bull. of Ag. Intelligence and Plant Diseases*, December, 1915.

The Rose Garden.

WITH the advent of October the Rose grower will take stock of his successes and failures during the past season, and also of his requirements for next year, as there is no better month for planting than November. Now that the days are getting shorter, he will have less time to spend among his favourites, particularly if engaged in other business during the day. No time should be lost, therefore, in completing notes of any alterations required as well as of varieties which are to be discarded or renewed. The same varieties do not grow equally well in all gardens, and it is largely a matter of individual experience finding out which are most satisfactory. Personal taste also has considerable influence, and as varieties are so numerous nowadays it becomes a case of choosing those we like best and testing them in our own particular soil and situation.

Very soon now the Rose catalogues will be with us—some indeed are already to hand in conjunction with the bulb catalogues, and the longer evenings provide an opportunity of studying them. Most of us will perchance look through the catalogues, but alas! present circumstances will, I fear, tend to restrain our desire to *try a new one*, but we must keep our beds and borders full, if possible, so perhaps an old favourite may be duplicated—one which, say, flowers long and continuously or is valuable for cutting, or the colour may seem desirable and worth repeating in another part of the garden.

In this connection I may here present a short list, made in mid-September, of varieties which have flowered freely all summer, and were even then giving a fine show of good flowers:—Countess Clanwilliam, petals flamed and edged red, becoming pink at the base; William Cooper, rich red, a fine robust variety; Mrs. Archie Grey, a nice yellow of good form; Grace Molynieux, cream, apricot and flesh coloured, a charming combination and a fine grower; Jonkheer J. L. Mock, carmine pink, a strong grower; La Tosca, silvery pink, a free bloomer; Viscountess Folkestone, an old favourite of mine, and still, I think, hard to beat, pale salmon-pink; Lady Alice Stanley, a gold medal Rose and worth it, described as coral-rose, inside pale flesh, a description that no more than does it justice; Mad. A. Chateau, looked upon as an old variety now, but, in my opinion, still unsurpassed either for bedding or cutting, of a delicate carmine-rose, and producing throughout the season an enormous number of lovely sweet-scented flowers on good long stems.

Those who like to bnd a few Roses annually should order a few stocks with their Roses, as to be successful the stocks should be well established, and that is best achieved by planting them early.

Arrangements should also be made now to have a sufficient supply of well decayed manure available when wanted. This may be done by storing it up now if facilities exist in your garden for so doing; if not, then place your order with a local cowkeeper or farmer for delivery when it is required.

As recommended last month, rake up all leaves periodically and burn them, so as to get rid as far as possible of the mildew fiend. B.

Notes for Novices.

VEGETABLES.—It is important to keep growing crops free from rubbish and decaying matter. Colder and damper conditions will now, more or less, prevail. Plants of endive that have been growing outside will require to be lifted and planted thickly together in a cold frame. Seeds sown last month may be pricked off four inches apart each way. Continue to earth up celery from time to time when the soil is in a fairly dry condition. Thin out late sown breadths of turnips that are intended for winter supply, and lift and store surplus roots that are of suitable size for table. A dry and airy shed, free from frost, is a good place in which to store them. As soon as the foliage of seakale can be easily removed, it is well to lift and prepare some of the crowns for early forcing. The whole of the side roots should be trimmed off and the best of them selected and kept in sand or ashes for next season's crop. Lay the crowns to be forced in ashes under a north wall, so that they can be easily removed in batches for forcing according to demand. It requires a strong bottom heat to start the crowns into growth during the present month. Another batch of spring cabbage may be planted out. Draw a little soil up round the stems of all the plantings to protect them during the winter.

FRUIT.—Late pears should be handled and stored very carefully, as they are soon bruised. They must not be gathered until the last possible moment or they will shrivel after being stored. Pears already in the store should be examined every three or four days, removing any that show signs of having been damaged or that exhibit decay. Allow stewing pears to remain on the trees for as long as possible. Most varieties of apples should be gathered and stored during the next three weeks, as we may expect autumn gales before that period has elapsed. The work of root pruning or lifting and replanting trees that have become unfruitful through the development of too much growth may shortly be commenced. The addition of fresh soil to the roots of young fruit trees is seldom necessary, but it is decidedly beneficial to older and larger trees. Turfy loam, roughly chopped and mixed with liberal sprinklings of lime rubble, wood ash and half-inch bones, may be employed. In pruning the roots, shorten severely those that grow downward, but preserve intact all fibrous ones and encourage them to grow near the surface. In filling the trench after the roots have been pruned, make the soil firm over each successive layer. When the work is finished, water the soil freely and apply a surface dressing of half decayed manure. Standard trees should be staked and tied securely to prevent the roots from becoming disturbed in the ground by swaying, caused by high winds.

FLOWER GARDEN.—As soon as the summer bedding is over, the beds should be cleared and got ready for the spring flowering plants. For most subjects the soil will need a liberal dressing of well-decayed manure, which should be forked well into the ground. A good strain of Polyanthus is most valuable for spring bedding, and, as the plants are quite easily grown, should play an important part in the scheme. A mixture of yellow and white varieties associated with Myosotis, make pretty beds. Wallflowers are always popular flowers, but sturdily grown plants are

necessary for success. Chrysanthemums grown in beds to furnish cut blooms should, if possible, be protected from early frosts. Glazed lights, fixed firmly over them, offer the best protection, as the blooms will be kept dry, and consequently last in good condition for a long time. Plants not yet showing colour in the flower buds should be lifted and potted. Prepare for this by cutting round the roots some distance from the stem. Water the plants copiously afterwards and syringe them daily. They may be lifted in about a week after cutting around the roots and placed indoors. To increase the stock of Anemones, lift a few old plants and cut the thicker roots into lengths of about five inches. Place the portions of root in boxes filled with sand, and stand the boxes in a cold frame. By spring each piece of root will have formed a crown that will develop into a good plant. The root cuttings may be placed singly in small pots and grown on for planting in beds or borders.

M. D.

R. H. S. Trial of Tomatoes under Glass, 1916.

ALL who are interested in the cultivation of Tomatoes, and who can spare the time for a visit to Wisley, are invited to inspect the Tomato trial, the results of which are published herewith. The trial was one of the largest ever undertaken at the R. H. S. Gardens, and included 116 stocks.

The seed was sown in pots on Feb. 28, and the seedlings pricked out into sixty pots and potted subsequently into 6-inch pots. After the plants had formed their first truss and had been severely checked they were planted in rows in a large bed made up in the Fig-house—the Figs having been removed to the open in order to make room for the Tomatoes. Five plants of each stock were grown under glass, and seven were planted in the open in order that rogues and trueness to type might be more thoroughly tested. The yellow-fleshed and "fancy" varieties were grown in a neighbouring house. The plants under glass have done remarkably well, and during the next fortnight may be seen at their best. In addition to the varieties sent in by the trade several first crosses raised at Wisley are included. The object of these first crosses was to ascertain whether they would give a higher yield than the parents by the side of which they were grown. Of these, one, a first cross between Sunrise ♀ by Merivale ♂ was "Highly Commended" by the Committee, but it has shown little if any superiority in yield over that of the male parent Merivale, which it closely resembles in fruiting habit. One of the most curious results of the trial was the excellence of the "Winter Coral" as a summer fruiting variety. It will be noted that two yellow fruited varieties have received Awards of Merit. Although these varieties are not of importance from a market point of view, they are well worth the attention of gardeners. The small plum-like Golden Nugget is of exquisite flavour, and suitable for eating raw or for use in salads. It is, moreover, remarkably prolific. The larger yellow tomato "Yellow Sunrise" is a handsome fruit of good flavour and a large yielder.

The following awards have been made to Tomatoes by the Council of the Royal Horticultural Society after trial at Wisley.

Award of Merit.—Nos. 103, 104, Golden

Nugget: for flavon in salad and dessert: introduced by Messrs. Sutton, sent in by Messrs. Sutton and Messrs. Barr & Sons, F.C.C., 1891. No. 109, Golden Sunrise: raised, introduced and sent by Messrs. J. Carter & Co., No. 26, Kondine Red: raised and introduced by Mr. R. Holmes, sent by Mr. R. Cobbley, No. 27, Kondine Red, Selected: raised by Mr. R. Holmes: introduced and sent by Messrs. Laxton Bros., No. 11, Merrivale: raised, introduced and sent by Mr. P. A. Cragg, No. 69, Water Baby: raised, introduced and sent by Mr. A. Balch, No. 95, Winter Coral: raised and sent by Mr. W. Camm, *Highly Commended*, XXX. No. 29, Aviator: raised, introduced and sent by Messrs. Dickson & Robinson, No. 76, Best of All: introduced and sent by Messrs. Sutton & Sons, No. 1, Evesham Wonder: raised, introduced and sent by Mr. J. N. Harvey, No. 105, Golden Perfection: raised by Mr. Gibson: introduced and sent by Messrs. Sutton & Sons, No. 77, Ham Green Favourite, Selected: sent by Messrs. Barr, F.C.C., 1887. No. 13, Muintown Seedling, syn. Sunrise: raised by Mr. P. Macdonald, introduced by Mr. F. Darwin, sent by Mr. J. G. White, No. 79, Princess of Wales: introduced and sent by Messrs. Sutton & Sons, A.M., 1905. No. 36, Sunrise, ♂ Merrivale ♀: raised and sent by R. H. S., Wisley, *Commended*, XX. — No. 82, Ayrshire: raised, introduced and sent by Mr. A. Balch A.M., 1910. No. 11, Beattall, Selected: introduced and sent by Messrs. Laxton, No. 31, Money-maker: raised, introduced and sent by Messrs. Dickson & Robinson, No. 11, Model: raised, introduced and sent by Messrs. Dobbie, No. 86, Northern King: raised by Dr. Crawford: introduced and sent by Messrs. Barr, No. 81, Stockwood Seedling, No. 1: raised, introduced and sent by Mr. G. Rodman, *Precious Award Confirmed*, No. 31, Ailsa Craig: raised by Mr. A. Balch: sent by Messrs. W. H. Simpson & Sons, A.M., 1910.

The following awards have been made to various annuals by the Council of the Royal Horticultural Society after trial at Wisley:—

ANNUAL CARNATIONS AND INDIAN PINKS.

Highly commended.—No. 7, Heddewiggii Crimson Bell, sent by Messrs. Barr, No. 1, Heddewiggii New Deeply Fringed, introduced and sent by Messrs. Barr, No. 31, Heddewiggii Star of Devon Strain, introduced and sent by Messrs. R. Veitch, No. 2, Heddewiggii superbissimus mixed, sent by Messrs. R. Sydenham.

Commended.—No. 18, Heddewiggii Fireball raised by Messrs. Watkins & Simpson, sent by Messrs. Dobbie, No. 8, Heddewiggii laciniatus, raised by Messrs. Watkins & Simpson, introduced and sent by Messrs. R. Veitch, No. 9, Heddewiggii laciniatus Vesuvius, from Messrs. Barr, No. 10, Heddewiggii laciniatus Vesuvius, from Messrs. Watkins & Simpson, No. 26, Heddewiggii Salmon Queen, from Messrs. Barr, No. 3, Heddewiggii, single mixed, from Messrs. R. Sydenham, No. 36, Heddewiggii superbissimus Queen Alexandra, raised by Messrs. Watkins & Simpson, introduced and sent by Messrs. R. Veitch.

CLARKIAS.

Highly commended.—Nos. 13, 14, 17, elegans Brilliant, raised and introduced by Messrs. Watkins & Simpson, and sent by Messrs. R.

Sydenham, Watkins & Simpson, and W. H. Simpson, respectively. No. 27, 28, 29, elegans fl. pl. Orange King, raised and introduced by Messrs. Watkins & Simpson, and sent by Messrs. Watkins & Simpson, R. Veitch, and Barr respectively. No. 39, elegans Rose Beauty, introduced and sent by Messrs. Barr, No. 21, elegans Salmon Scarlet, from Messrs. Sutton, No. 25, elegans Scarlet Queen, raised and introduced by Messrs. Watkins & Simpson, sent by Messrs. Nutting, No. 18, 19, elegans fl. pl. Vesuvius, raised and introduced by Messrs. Watkins & Simpson, sent by Messrs. Watkins & Simpson, and Dobbie, respectively.

Commended.—No. 13, pulchella Double White from Messrs. R. Sydenham, No. 3, elegans Purple Prince, from Messrs. Barr, No. 12, elegans fl. pl. Queen Mary, raised, introduced and sent by Messrs. Watkins & Simpson.

ANNUAL DELPHINIUMS AND LARKSPURS.

Award of Merit.—No. 13, Blue Butterfly, sent by Messrs. Hurst, (A.M. 1900, confirmed.)

Highly commended.—No. 5, Azure Fairy, raised, introduced and sent by Messrs. Dobbie, No. 7, Azure Fairy, raised, introduced and sent by Messrs. Watkins & Simpson, No. 1, Rosy Scarlet, from Messrs. R. Sydenham.

GODETIAS.

Award of Merit.—No. 23, Lavender, introduced and sent by Messrs. Carter (A.M. 1915) confirmed.

Highly commended.—No. 10, Duke of Fife, sent by Messrs. Daniels (A.M. 1890), No. 30, Schamini fl. pl., introduced and sent by Messrs. Watkins & Simpson (A.M. 1905), No. 16, Whitney, Crimson Gem, sent by Messrs. Barr, No. 22 Whitney Marchioness of Salisbury, sent by Messrs. Barr (A.M. 1895).

Commended.—No. 10, Compacta Sunset, from Messrs. R. Sydenham, No. 31, Schamini Double Carmine, sent by Messrs. A. Dickson, No. 3, Tall Double Mauve, sent by Messrs. W. H. Simpson, No. 2, Whitney White Gem, sent by Messrs. Barr.

MIGNONETTE.

Highly commended.—No. 32, Giant, introduced and sent by Messrs. Dobbie, No. 36, 39, Golden Queen, introduced by Messrs. Sydenham, sent by Messrs. Sydenham and Barr respectively, No. 27, Machet, introduced and sent by Messrs. R. Veitch, No. 23, Machet Giant Crimson, introduced and sent by Messrs. Watkins & Simpson, No. 18, Machet Hercules, introduced and sent by Messrs. Barr, No. 7, Paris Market, introduced and sent by Messrs. Barr.

Commended.—No. 31, Garicle, sent by Messrs. Hurst, No. 25, Machet Improved, sent by Messrs. Barr.

The following awards have been made to Late Potatoes by the Council of the Royal Horticultural Society after trial at Wisley:—

Highly commended.—No. 93, Donside Defiance, raised and sent by Mr. D. Cook: introduced by M. H. Sinclair, No. 88, King Edward, introduced and sent by Messrs. Dobbie & Co., raised by Butler, No. 76, Rob Roy, introduced and sent by Messrs. Veitch, raised by A. W. McAlister.

Commended.—No. 18, Arran Chief, sent and introduced by Messrs. Dobbie, raised by W. Kelvie, No. 6, Cropper, introduced and sent by S. Anketell-Jones, No. 58, Drumwhindle, sent by Mr. L. Gavin, No. 89, Irish Chieftain, introduced and sent by Lissadell, raised by Mr. F. J.

McKenna, No. 74, Langworthy, introduced and sent by Messrs. Dobbie, raised by Mr. Niven, No. 30, Prolific, introduced and sent by Messrs. Dobbie, No. 42, Superlative, sent and introduced by Messrs. Sutton, raised by Mr. W. Coleman, No. 10, The Chapman, raised, introduced and sent by Messrs. Dobbie, No. 83, The Factor, introduced and sent by Messrs. Dobbie, raised by Mr. Chapman (A.M. 1901, F.C.C. 1905), No. 8, The Provost, raised, introduced and sent by Messrs. Dobbie (A.M. 1907). No. 65, White City, introduced and sent by Messrs. Sutton.

Hints for Amateurs.

By R. M. POLLOCK.

OCTOBER brings much work and little time to do it. The days are shortening fast, and the busy amateur engaged during the day at business finds the evenings now too dark for work. However, a Saturday afternoon now and again may be possible, and much can be accomplished by the enthusiast.

All herbaceous plants, whether annuals or perennials, should be encouraged to flower, as long as possible by removing dead flowers, and watering where necessary. It may seem to some rather a waste of time to water so late in the season when the nights are growing cold, but if established clumps of late flowering herbaceous plants be examined it is astonishing to find how dry the soil is about them, and if it is allowed to remain so the flowers quickly fade and many fail to open.

Many of the annuals are now completely over, and may be pulled up and replaced by a few bulbs of Daffodils or Tulips. The soil will need nothing more than turning over with the spade or fork, as no manure is wanted. Wallflowers, Sweet Williams, Polyanthus, &c., may also be planted as annuals go over, and so the beds and borders are kept full of plants and full of promise.

The autumn sowing of annuals is very often recommended and is good in principle, but sowing direct in the border is seldom possible early enough to give the young plants a chance to become established before winter; also much attention is necessary to guard against the ravages of slugs and birds, so that all things considered it is better to sow at this season in pots and keep them in a cold frame till planting time in spring. Sow thinly and water sparingly through the coldest months and the little plants will be sturdy and strong for going out in spring and will be considerably ahead of the spring-sown seeds. Clarkias, Godetias, Larkspurs, Mignonette, Eucharidium and Chrysanthemum Secetum are some of the things that may be sown now.

Make provision for storing Dahlia tubers, Gladioli, or any other "roots" which are lifted annually, and if you grow any rare or doubtfully hardy plants, many of which are very charming, be prepared to afford a little protection in very hard weather.

Plants for the Garden.

The Point Grey Horticultural Society has inaugurated a valuable series of educational meetings which in the near future are bound to show results in the greater perfection and beauty of gardens and their contents, throughout the municipality.

The third of these meetings was held recently in the Municipal Hall, Kerrisdale, when the President, Mr. J. Fyfe Smith, occupied the chair and presided over a good attendance of ladies and gentlemen.

The business of the evening was devoted to discussions on Pansies, Roses, and native flowers for the garden. The discussion on Pansies was opened by Mr. J. Livingston, who illustrated his remarks with a large collection of different types of fancy Pansies and Pansy-Violas. Mr. Livingston dealt with the essential differences between these two favourite garden plants, and gave many valuable hints on their culture and development to fit them for display on the exhibition table. He emphasised the readiness of these species to respond to feeding with liquid manure and chemical fertilizers, especially of the application of nitrate of soda or sulphate of iron in solution just before flowering. Specimens of Pansies were supplied to the members present, and each had an opportunity of studying the various points which it is necessary a Pansy should possess to be of value for show purposes.

The President then asked Mr. Chas. Bailey, F.R.H.S., to open the discussion on "Roses." In his paper Mr. Bailey dealt with the selection of suitable varieties, proper soil, planting, pruning, and their preparation for the show. He drew attention to many common mistakes of amateurs and explained how to obtain best results by pruning at the correct season, and how to correctly stage exhibits.

Mr. J. Davidson, F.L.S., provincial botanist, was next asked to speak on "Native Flowers for the Garden." Mr. Davidson's remarks were illustrated by a collection of fresh flowers from the Botanical Garden at Essondale, and many of these drew forth the admiration of both amateur and professional gardeners of which the audience was composed.

Amongst the native plants which attracted most attention were the Yellow Lady's Slipper Orchid which can be grown in the open border and is equal in beauty to some of the better known greenhouse species. The native evergreen Rhododendron was exhibited by a magnificent cluster of beautiful waxy carmine pink flowers, and all were agreed that its beauty exceeded that of many garden varieties. The fact that it was found on our B. C. mountains ensures that it is perfectly hardy and requires no special care. In this connection Mr. Davidson mentioned his success in obtaining seed off this species, and had now several thousand seedlings, which would in all probability be utilised in the beautification of the university site at Point Grey.

The native Iris from the northern regions of the province was also shown in flower. It resembles a Japanese Iris, of a lovely dark blue, beautifully pencilled with white. The size and abundance of the flowers makes this species a valuable addition to the herbaceous border. Amongst the other showy plants exhibited and described were four species of Pentstemon, Indian Canna, Indian Paint-brush, Erigeron, Columbine, Larkspur, Rosy everlasting, three species of Erigeron, Red Bane-berry, &c., &c. A short discourse was also given by Mr. Davidson on the native Orchids, when it was pointed out that there were between 20 and 30 different kinds in B. C. Herbarium specimens were shown to illustrate the principal species—*British Columbia Fruit and Farm Magazine*, July 1916.

The Month's Work.

The Flower Garden.

By CHARLES COTTEN, Gardener and Forester to Lord Carew, Castle Boro', Clonroche, Co. Wexford.

OCTOBER is a month when, having said good-bye to the summer and autumn flowers, we must make our garden tidy and get ready for the spring. Those who have a set of flower beds on their lawns, laid out in a formal design, and which are in full view of the mansion or cottage, as the case may be, can help to brighten the winter outlook by planting small golden-coloured trees and shrubs as dot plants in the beds which are filled up with Wallflowers, Tulips or Daffodils, as the case may be. No doubt, when the beds are in bloom in April and May they do not need the help of these trees and shrubs, but the five dull months of the year they brighten up the flower beds. There should be provision made also in any garden, however small, for brightly coloured plants and shrubs, which may be placed in corners in groups or by the edges of the garden walks. Amongst the best of these are the *Pernettyas*, which may be grown in groups in small hedges or small specimens. There is something to be said for each system, but if a lot of these plants are desired do have them in groups or a small hedge. A lot of single plants dotted about the garden has not the best effect. If only a few plants are used, I would, to get the best results, plant them together. These plants do not like lime. In limestone districts they are never a success—they only live, they do not thrive. The berries may be from the purest white to the deepest purple, but the variety commonly met with is a rose colour. The *Elaeagnus* are a group of plants which are beautiful for their foliage, and the *Cotoneasters*, amongst which there are many beautiful new varieties, now having orange coloured berries. The winter flowering *Heathers*, too, are lovely. *Erica codonodes* flowers with me most of the winter, and *Erica vagans* and *carnea*, with its varieties *alba* and *rubra*, flower from October till the end of March. The shrubby winter-flowering honeysuckles *Lonicera fragrantissima* and *Lonicera Standishii* are lovely things to have in a sheltered spot near the house, the flowers are not showy, but their fragrance is delightful when so few flowers are to be had. The Japanese Witch Hazel *Hamamelis arborea* and the smaller variety, *Hamamelis Mollis*, planted in groups of four to six plants, especially if placed near water, are in frosty days and in cold weather one of the joys of the garden. *Nuttalia cerasiformis* flowers in February, is quite hardy, but the flowers are white and do not show to the advantage one expects. These, however, can be cut in small branches and brought into the house for decorations. Amongst many beautiful shrubs and small trees to be planted now for spring flowering and for permanent positions are the flowering cherries; *Cerasus serrulata*, the best double white cherry, and the double rose form *Cerasus James H. Veitch*. Amongst the flowering crabs is the weeping form of *Pyrus floribunda*: on a standard, this planted in a group in the

grass, about three yards apart and near running water, makes a lovely feature a few years after planting. *Pyrus Schiedackerii* is probably the most free flowering of the upright rose-coloured crabs, and is very showy. Other beautiful flowering trees are the *Magnolias*, either as single specimens of the large growing trees, such as *conspicua*, which grow fifteen feet high and over, with its varieties *soulangiana* and the almost black-coloured form *nigra*, to groups of *stellata*, which grows about two and a half feet. *Magnolia Lemoii* is a large growing plant and worthy of notice. Sufficient space has been taken up with these notes and the larger trees and shrubs will be dealt with next month.

This is the best month to plant any kind of bulbs in grass. Crocuses must be planted early if good flowers are expected. I like to plant them at the end of September.

The garden must be kept cleaned up. If leaves are allowed to lay about in heaps they leave their mark on the walks and lawns and do much harm. The rock garden must be kept quite free from leaves or some of the smaller plants will be found rotted away. Any doubtful alpine which are susceptible to damp should have a piece of glass tilted over them to throw the rain off the centre of the plants, but not in any way to coddle the plants.

Bulbs started in pots for winter forcing may be brought from the frames into a cool greenhouse for a fortnight. When they have plenty of roots formed and the top growth makes headway gradually introduce them to more heat, if obtainable. *Freesias* must be housed in a cool, airy place, preferably on a shelf near the glass until they are further advanced. The *Mignonette* in pots will be growing in the same house. *Cyclamen* must be kept growing in a temperature of 55° to keep them healthy and get them into flower by the middle of November. Young seedlings still in the seed pans must be kept near the glass and kept growing. Sweet Peas for flowering in April under glass will now want potting into six-inch pots, and can be wintered in a cool house near the glass with only fire heat on cold frosty nights; after the new year they will go into their flowering pots and be pushed on a bit faster. *Schizanthus* seedlings sown last month are ready for potting into three and four-inch pots, in which they will stop until February, when they will be put straight into flowering pots. *Chrysanthemums* in pots must be put in the greenhouse now. After putting them in fumigate on two consecutive nights and kill all the greenfly before it runs over all the other plants. *Cinerarias* are safe in the cold frames to the middle of the month, but not later.

Keep all the cuttings in cold frames as hardy as possible, taking off the lights on all possible occasions when it is not raining. At night have a small piece of wood under the back of the light to prevent condensation of the moisture on the young plants. This is necessary even if mats are covered over to keep out the frost.

Keep the Violet frames open at all times when it is not raining, unless frost prevents you, and always keep a chink of air on the back of the lights at night. Cuttings of roses to grow on their own roots may now be taken and heeled in at the foot of a garden wall to callous during the winter.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

THE gathering and storing of ripe fruit will again be the most important operation of the month. Late keeping apples and pears should be examined at short intervals, so as to secure them in perfect condition. It is best to let them hang on the trees as long as they will do so with safety; but as a general rule, when the colour of the pip changes from white to brown the fruit is ready for gathering. When storing, great care should be taken not to include any pecked, or otherwise injured, fruit, as one bad fruit will quickly spoil many others. Apples are valuable this season, and a little extra care in picking and storing will be well repaid.

STRAWBERRIES.—New plantations should be hoed frequently whenever the weather is suitable, and all runners removed from the plants. This treatment should be continued until active growth ceases for the year. Old beds that are to be kept for another year should also be kept clear of weeds and runners. There is still time to make new plantations, although these should not be allowed to bear fruit next season. They will, however, be very useful in providing an early batch of runners either for forcing or early planting.

RASPBERRIES.—If the old canes were cut out after fruiting, as recommended previously in these notes, and the new ones thinned out to a suitable distance apart, all that will be needed now is an occasional hoeing to keep down weeds. If it is intended to make new plantations, the ground should be well trenched now and enriched with farmyard manure. In heavy soils plenty of wood ashes and soil should be worked in near the surface.

LIFTING AND ROOT-PRUNING.—Fruit trees on walls and in the open often require some rearrangement at this time, to fill blank spaces and to afford more room to such as have become too crowded. This provides an opportunity to lift any trees that are growing too rampantly and making much unfruitful wood. In doing this a trench should be taken out about 3 feet from the stem, and the soil loosened from about the roots with a small fork, working gradually in towards and under the trunk. Care should be taken not to damage any small fibrous roots, but all thick roots that are devoid of fibre should be cut hard back with a sharp knife. All thick roots growing downwards should also be cut. Having thus reduced the ball of soil and roots to a size suitable for lifting, the tree can be removed to its new site, or if no rearrangement is necessary it can be replaced in the same hole, and the work of re-planting commenced. Each layer of roots should be replaced at its proper level, and soil should be well rammed into all hollows and crevices under the ball. After the filling in is finished tread the soil firmly about the roots and finish off with a mulch of strawy manure. Secure the tree loosely to its supports, allowing room for any sinking that may occur. In root pruning a trench is taken out at between 3 and 4 feet from the trunk, according to the size and age of the tree. All thick roots are then cut back to the inside edge of the trench, but the thin fibrous roots are carefully preserved and replaced at their proper level when filling in the trench again. The soil should be excavated from under the stem of the

tree, and all thick taproots cut through. When doing this one side of the tree must be done at a time, and the soil replaced, so as not to displace the tree. In the case of large trees it is better to spread this treatment over two seasons, as it would cause too great a check if all the large roots were cut at one time. If the soil is fairly dry and friable, the same can be replaced when filling in, although, both in the case of lifting and root-pruning, a little fresh loam near the surface is an advantage, as it encourages roots to form near the top. Where the soil is heavy and wet a good heap of light soil should be kept under cover for these operations, which can then be performed under weather conditions that would render such work impossible where no such provision had been made.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany, Dunsany Castle, Co. Meath.

TAPROOTS.—During this month the root crop should be lifted and stored. Any convenient corner, or a frost-proof shed will be found suitable for storage of this crop. Parsnips are better left in the ground till the new year; they then should be lifted and stored in a cool place. If left in the ground after that date, the roots will form new leafage at the expense of the quality of the root. Beet, salsify and scorzonera should have their leaves twisted off and placed in layers in dry soil or ashes. Carrots may be stored in a somewhat similar manner, but the roots keep fresher if the soil is a little damp. Some turnips may be lifted and put in store for the winter. The leaf crowns should only be projecting from the sides of the pits; cover with straw litter or hay; a sheet of galvanized iron, or a broad plank, should be placed over the ridge of the pits to ward off excessive rain.

POTATOES.—All late potatoes should now be lifted and stored. Should the weather be dry, let the tubers remain on the surface for a few hours. Select a suitable quantity of medium sized tubers for seed; the tubers suitable for cooking should then be gathered and stored in a dark cold shed or pit. If dustings of lime be used when storage is in progress the potatoes will keep much better. All the small tubers should then be picked up for poultry feeding, &c., and the diseased ones burned with the haulms.

SEAKALE.—A few roots of seakale may be lifted and trimmed for forcing. Cut the main root about seven inches from the crown; they then should be placed thickly in ashes or sand till required for forcing. The root trimmings may then be made into cuttings about six inches in length. Cut the top portions nearest the main stem evenly across, and the lower end pointed. Place the cuttings in stock in any convenient sheltered position till required for planting in the spring.

CAULIFLOWER.—During this month autumn cauliflower will require protection. The most forward plants may be lifted and placed behind the shelter of a wall or hedge, others may have the leaves bent over to protect the curd.

BRUSSELS SPROUTS.—The sprouts are now forming on early planted stock. The leaves should not be removed till the sprouts are well formed, and even then it should be done with care, leaving a little part of the leaf stock on the stem of the

plant. The part left will soon come off, and no harm will be done to the sprouts.

TOMATOES. All fruits grown on the outside borders should be removed from the plants, and placed on the greenhouse wires or shelves to ripen.

CELERY. Any time during this month, when the weather is favourable, celery will require the final moulding-up. Pulverise the soil well and work it between the plants. The ridges when finished should be sharp and made firm with the back of a spade, so that they will throw off rain. Excessive moisture at the stem of the plants will do more harm than frost.

SALADS.—Some chicory may be lifted for forcing. Place endive and lettuce in frames for winter use, the sashes should remain off unless there is excessive rain or frost. Mustard and cress may now be sown in boxes and placed in heat.

THE VEGETABLE CROP. All vegetables have been a success this season. Beet and parsnips are looking well, and carrots are free from fly. Cauliflower turned in slow at first, but is now giving satisfaction. Peas at first did not fill well, but mid and late season varieties have done well. French beans were poor in the early summer, but gave better results late in the season. Spring sown onions could have done better, but there has been a fair general crop. Celery is still free from blight and is looking healthy.

Notes.

Common Sense.

"We have been told to turn our gardens into potato patches. I doubt whether the author of this poster has any practical knowledge either of gardening or agriculture. To turn a flower garden into a vegetable garden means one of two things—either the expenditure of capital on the extermination of valuable plants, the purchase of loam and manure, and the employment of labour absolutely unprocureable, or it means poor vegetables which cannot be sold or given away under the ordinary village conditions of English rural life.

"I speak with feeling. I would rather see a dozen soldiers home on leave mending their health by enjoying the Roses, Foxgloves, Delphiniums and Heliotrope than batten on artichokes and potatoes that have cost me two shillings and sixpence to grow."

ARNOLD WHITE in the Sept. *Royal Magazine*.

Fruit Growing in Manitoba.*

1,000 Quarts of Strawberries on a Third of an Acre.

MORE than 1,000 quarts of strawberries have been grown this season by Mr. A. Wilson on a third of an acre near Portage la Prairie, Manitoba. He was able to dispose of them at 25 cents a quart, and as the picking was done by himself and family, there would be a return of over £50 from the third of an acre. The berries are of the Dundrop variety, and are large and luscious. Altogether, Mr. Wilson farms fifty-six acres, all in fruit or vegetable crops. He has ten acres of cucumbers, ten acres of cabbage and cauliflowers and twenty-five acres of potatoes, and with all his crops he is usually successful.

The British Columbia Orchards.

Prospects of Good Crop and High Quality.

THE apple production of British Columbia this year is estimated at about 10 per cent. over that of last season. Of last year's crop about 30 per cent. was used in the province; 60 per cent. shipped to the Prairie Provinces, and 10 per cent. exported to Australia, New Zealand, Great Britain and elsewhere. Already this year the full capacity of the vessels trading to the Antipodes has been contracted for, and the export to those points would be larger were the carrying space available. According to the latest reports received by the Government the apple crop is generally in good condition. The crop in what is known as the dry belt the Okanagan, Boundary and Thompson River sections is exceptionally clean. The hot weather in June affected many trees which had felt the severe winter, and, in consequence, the June "drop" was heavy. But the prospects from the standpoint of quality this year are much better than last.

War Prices and the Canadian

Fruit Crop.*

Preserving without Sugar.

BRITISH Columbia is expected to have a large crop this year of soft fruits, such as apricots, peaches, plums, prunes, cherries and preserving pears. The British Columbia Fruit Growers' Association and the Provincial Department of Agriculture are endeavouring to obtain an extended market for those fruits throughout Western Canada. Unfortunately the present high price of sugar is an obstacle. In view of this the Prairie Markets Commission of the Horticultural Branch of the Department of Agriculture asks that all shippers place in each box shipped a slip giving methods of preserving fruit without sugar. In a useful pamphlet issued by the same branch, it is stated that sugar used in less quantity than is necessary to make a thick syrup "takes absolutely no part in the preservation of fruit from deterioration." It adds that fruit preserved without sugar retains its distinctive flavour, and is altogether superior to fruit preserved with sugar. Of course sugar must be used when the fruit is prepared for the table.

Canada as a Sugar Growing Country*

IN recent years Canada has entered the field as a grower of sugar beet. It has been found that certain parts of the Dominion are ideal for the cultivation of this crop, and with modern manufacturing methods Canadian-grown beet is producing a sugar equal to any grown elsewhere. For Canada it means an industry already very important from the labour standpoint. It means furthermore an industry that supports, on an exceedingly profitable basis, hundreds of farms in Western Ontario and elsewhere. In the counties of Essex, Kent, Lambton, Waterloo, Wellington and Huron thousands of acres are devoted to the cultivation of the crop. Sugar beet is also grown in parts of Western Canada.

* Canadian News Items, Aug. 21.

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Irish Gardening

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NOTICE

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R

EADERS of IRISH GARDENING are asked to kindly introduce the paper to any of their friends interested in plants and gardening.

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A MONTHLY JOURNAL DEVOTED TO THE

VOLUME XI

No. 129

ADVANCEMENT OF HORTICULTURE AND

NOVEMBER

1916

ARBORICULTURE IN IRELAND

EDITOR—J. W. BESANT.

The Alpine Garden.

DURING this month any alterations or rebuilding required may be carried out, as at this time of the year one does not mind a little disturbance and consequent untidiness, the days being short and the season of flowers over. A great many of the commoner showy plants may be planted quite safely still, such as *Aubrietias*, *Arabis*, *Phloxes*, &c., but the choicer kinds of *Saxifrages*, *Androsaces*, *Wahlenbergias* and the smaller *Campanulas* and such like plants will be far better in pots or the nursery beds till spring. Meanwhile, during rebuilding, choice places may be left for them. Not the least of the joys of a rock garden lies in occasional reconstruction and planning places for favourite plants which hitherto may have failed to realise our best hopes. In all rebuilding provision should be made for perfect drainage. The amount of artificial drainage necessary can only rightly be determined on the spot, but the bulk of the soil into which the stones are being placed should be made quite gritty by the addition of abundance of stone chips. There is often a belief that alpinus will grow in any poor soil if it is well drained, but this is not always the case. I rather incline to the belief, after some years' experience, that what the majority of them prefer is a soil that is *good* and *gritty*; and they all like a deep soil into which the roots can penetrate at will. One reads very often of certain alpinus which in nature have long taproots which penetrate many feet into fissures in or between rocks, but it does not follow that the same plants propagated in a garden will do the same thing. Growing wild the plants have to produce long taproots, otherwise they would not find the moisture and cool conditions they require. In the garden, however, we provide them with these conditions, and they have no need to form taproots to the same extent. At the same time many of them are ill adapted to endure heavy

wet soil, hence the advice to make the soil gritty and deep, so that superfluous moisture may drain away and the roots get deep enough to be cool in hot summer weather. Some may urge that the moraine is an instance of a poor soil which grows many difficult alpinus successfully; but is it? In the moraines formed naturally, high up on the mountain ranges, there is a considerable proportion of rich mould formed of decayed vegetable matter mixed with the rocky debris. Much of this is without doubt washed down among the loose stones by melting snow, and there provides plenty of food material, while the drainage is perfect. In this connection it has been remarked, I think, by M. Correvon that many of our lovely European *Primulas* grow high up on the mountains on rocky ledges, not, as it may be supposed, in poor gritty soil, but really in rich black humus like peat which has accumulated there by the decay of leaves and lowly forms of plant life. During summer this mould, or soil as we may call it, is quite wet, but not sour, since of course the moisture is always moving downwards. When winter comes again the movement of the water is stopped by frost, and the plants are kept warm and dry by snow, which remains there till the spring and early summer sun begins the movement once again.

It is the want of the warm dry covering of snow that makes it so difficult to cultivate many of the higher alpinus, especially in Ireland, where too often our winters bring only rain and a dull grey sky. Plants which are found to suffer from too much wet in winter should now have a sheet of glass arranged over them. Woolly leaved plants, such as the *Androsaces*, are usually treated so, but there are others which might equally benefit by such treatment, among others the *Kabschia Saxifrages*, which have a habit of making fine plants during summer and then rotting off in the centre during winter. The

glass also has another use since by warding off excessive rain it tends to keep the soil about the plants drier, and thereby assists in providing more completed rest. Not a little of our trouble is, I believe, due to our plants growing to late into autumn, and possibly the use of some covering material, which would keep them dry while admitting light, put on earlier than we usually do, would harden and ripen the growth and render it better able to come through the winter. Thus many good plants will flourish in an old wall where the roots get sufficient moisture even in dry weather, but are free from the drenchings experienced by plants growing in ordinary flat pockets. People who rail against the use of too many stones in the rock garden would probably find that here and there a few narrow vertical fissures, backed by gritty soil, would grow well many of the little gems which do not take kindly to flat pockets. B.

Chionanthus *virginica*.

FRINGE TREE.

THIS is a very beautiful American tree admirably suited for cultivation in most parts of Ireland.

It is a native of the Eastern United States, and was introduced as long ago as 1736. It is deciduous, with oblong oval leaves, varying in length up to 6 or 8 inches. The flowers, which are produced in early summer, are pure white, borne in dense panicles hanging from the lower side of the branchlets. A well-flowered specimen is very attractive, as may be seen from the specimen figured from Mr. Walpole's garden at Mount Usher. A rich moist soil and an open position are necessary to secure the best results, and for such an interesting and beautiful shrub or small tree no trouble should be too great to do it justice. Propagation is effected by layers or imported seeds. B.



"MALMAISON" CARNATION PRINCESS OF WALES
At Bessborough.

Kirengeshoma palmata.

A NATIVE of Japan, this is a most striking plant, flowering in August and September. The handsome leaves are not unlike those of a maple in general outline, being about six inches broad and as much long, with prominent veins and five to seven shallow lobes. The upper surface is bright green, the lower much paler. The stalks of the leaves are from four to five inches long, more or

less round and very stout. The flowers, which are produced at the ends of the shoots, are bright yellow, borne in a panicle. The petals are of great substance and feel quite thick and leathery to touch.

A moist, rich soil in a half-shady position suits the plant admirably. Propagation is best done by division in spring, when the new shoots are just beginning to grow. It is not a plentiful plant at present, owing perhaps to being rather slow to propagate, but doubtless this difficulty will be overcome by our enterprising nurserymen.

Astilbe *grandis*.

THIS is a very handsome plant introduced, some years

ago, from China. It is essentially a moisture lover and how well it does under such conditions is clearly shown in the accompanying illustration (see page 165) of a fine plant in the garden at The Bush, Antrim, where there is an abundant supply of natural water.

The flowers are white, produced in immense plumose inflorescences, the flower stems reaching a height of 5 to 6 feet when at their fullest development. When associated, in the bog garden, with other pink and rose-purple varieties and hybrids a very pretty effect is produced. An annual mulch of rich rotten manure is very beneficial.

B.

Funkia tardiflora.

THIS hardy Plantain Lily is one of the treasures of the outdoor garden in late autumn. Given favourable weather conditions the flowers continue in beauty from September until November. They are a delicate mauve or pale lilac shade, borne freely towards the top of racemes up to about 1 foot high. The clumps have a somewhat tufted character. The leaves are a rich dark green, comparatively small for a *Funkia*,

being only some 6 to 9 inches long, including the petiole. Though introduced in 1895 presumably from Japan by the late Herr Max Leichtlin, it does not appear to be widely known. At first considered to be a late flowering variety of *Funkia lancifolia*, it is now generally considered to be sufficiently distinct to be regarded as a species. Plants thrive in most soils and in sun or partial shade. Division of the clumps in spring provides a ready and rapid means of increase.

A. O.

*Nerine**Bowdeni*.

PLANTED on a sunny south border in well-drained soil, this *Nerine* is proving a valuable autumn

flower. Under conditions favourable to the *Belladonna Lily*, *N. Bowdeni* thrives at the foot of a south wall, and during October is very showy. When first introduced from South Africa about 1900, and distributed by Mrs. Cornish Bowden, of Oaklawn, Newton Abbott, it was thought to be a hybrid or variety. The bulbs first flowered in Ireland in the late Mr. W. E. Gumbleton's garden. One of, if not, the largest-flowered of all the *Nerines*, the rose-pink blooms are borne on robust scapes up to 18 inches high, and is a very distinct species. It seeds freely, and by this means and offsets can be readily propagated.

A. O.

Elsholtzia Stauntoni.

FLOWERING in October, this is an interesting and rather pretty shrub, doing best in a rather sheltered position. It is fairly hardy, but the shoots die back considerably each winter, strong young ones being produced freely from the woolly base in spring. The lance-shaped leaves are coarsely toothed, 2 to 4 inches long, and about an inch wide. The flowers are produced in panicles and are pink in colour, borne chiefly

towards the ends of the branches. Any pruning required should be done in spring, this consisting chiefly of cutting off the dead wood of the previous year.

Cuttings of the young growths root readily, and in spite of flowering so late, good seeds are sometimes produced.

It would make a most interesting shrub to grow on a wall with other late-flowering shrubs, such as *Caryopteris Mastacantha*, which also is very lovely now. B.



CHIONANTHUS VIRGINICA (see p. 162)

At Mount Usher.

*Aconitum**Wilsoni*.

MANY new plants are introduced from time to time, but not every one is found satisfactory. The subject of this note, however, introduced some years ago from China,

can claim quite everything good which was said about it when first offered to the public.

The flowers, which are violet blue in colour, are produced in September, when they are very valuable among the host of yellow flowers which somehow or other always tend to predominate at that time. The rich soil of the herbaceous border is just what it wants, and shoots six feet high are produced when the plant is well treated. The effect, therefore, of a clump a yard through is all that could be desired, and when one reflects that this can be secured year after year with but little trouble it becomes clear that the gardener who cannot afford to grow tender plants need



KIBINGESHIOMIA PALMATA (see p. 162)

At Mount Usher.

care little in the face of the wealth of hardy perennials with which he may beautify his garden.

Aconitum Wilsoni was introduced by the man whose name it bears while travelling in China for Messrs. Jas. Veitch & Sons. Seeds are produced freely by cultivated plants and provide a means of increase which is also readily carried out by division of the roots in autumn or spring.

B.

Single China Asters.

READING the interesting note on these valuable September flowers on page 146 of IRISH GARDENING for October suggests writing a brief description of our method of using them at Kew. In most public parks there is a considerable amount of worn turf to make good during the winter, mostly by the sides of walks and along the front of the flower borders. To supply this turf at Kew a piece of lawn is selected in the Arboretum rather off the general grass avenues on which visitors walk. The turves are cut as required for use throughout the winter, and by the end of March there is usually a considerable area of bare ground. This is used as a shoot for spare soil which, early in April, is spread over the ground, the whole being forked over and levelled. The Aster seeds are then scattered over the ground broadcast and raked in. Some seasons a little thinning and transplanting is done during showery weather, but this year none was attempted owing to the shortage of labour, all that was done being the

removal early in August of some big, rather tall weeds. During most seasons when the young plants are 3 or 4 inches high, their growth is liable to be checked by black fly. When this shows itself they are given liquid manure from the stable yard to encourage growth. This year it was only possible to give one application. The display of flowers, however, has never been better, and throughout September they were a source of considerable attraction to visitors. Of irregular outline about a hundred yards long and 20 to 50 feet wide, they formed an effective scheme of "Wild Gardening" at the north end of the lake.

The plants seed freely each year, providing an abundant stock for the next season's sowing. A few self-sown seedlings come up the next year, but to be sure of success it is necessary to harvest the crop and sow in April.

A. O.

"The Burning Bush."

DICTAMNUS ALBUS.

THIS is an old-fashioned perennial of considerable beauty, but for purely decorative work it is outshone by some of its varieties. In spite of the specific name, the type has pink or pale-purple flowers, and there is a white variety which is not of much value. A dark-flowered form known as *D. a. purpureus* is good, but the most showy of all, in the writer's opinion, is *D. a. gigantens*, often sold as *D. caucasicus*. This is a strong-growing variety, producing shoots three feet high when in flower, the flower spikes a foot or more long, and the individual flowers of large size. The colour is pink, each petal marked with darker lines. No more showy or striking plant could be desired for late June and early July flowering, and none is easier to grow. A light but deep soil is most suitable for the thick fleshy roots, and the plant flourishes in sun or shade.

Propagation is fairly easy by means of seeds sown as soon as ripe, either in a pot or in the open ground, but at first the seedlings grow very slowly; after two years or so they progress more rapidly, and in three or four years good plants are formed.

FRAXINELLA.

Souv. de la Malmaison Carnations.

It would be difficult to find a more appropriate subject than this beautiful race of plants under existing conditions; fuel being almost unobtainable in most places, they succeed admirably grown under cool conditions. Our plants were grown entirely without artificial heat last year, and produced large fleshy blooms of good substance, lasting a considerable time when cut for room decoration. Naturally the largest blooms were those cut from young plants layered the end of July and potted on into 6-inch pots: at the same time those potted on the second year are much more remunerative, producing seven or eight blooms instead of one.

There are a few most important items to be considered in the cultivation of "Malmaisons"—they are, soil, watering, and keeping the plants free from insects, of which greenfly is the chief enemy. Plants grown under clean healthy conditions seldom suffer from the dreaded rusts. Clean healthy plants should be selected for layering as soon as the flowering season is over. These should be turned out of their pots and plunged in a cold frame in a partly shaded position; the rooting medium should consist of leaf-mould and sand in equal portions, the former passed through a quarter-inch sieve, and the whole made moderately firm. Make a good, long, clean upward cut, and fix firmly by the use of layering pins; give a thorough watering with the rose can; close the frame, and shade lightly from strong sunshine, admitting air when necessary to keep the layers from getting drawn and weakly. New growth is a sure indication of root action. When sufficient roots are made sever the layers from the parent plant a few days before potting. Clean 1-inch pots should be prepared, and the soil should consist of loam and leaf-mould in equal portions, with a good portion of coarse

sand added. Pot firm and place the plants back in the cold frame again. Give a good watering and every encouragement to induce sturdy growth. Examine the young plants occasionally, and when the pots are fairly filled with roots preparations must be made for the final potting. Pots 6 inches in diameter, clean and well drained, should be got ready. The compost to be used should consist of good rough fibrous loam, with the bulk of the fine particles taken away. Add about a 12-inch potfull of old spent mushroom bed, or, if unobtainable, the same quantity of leaf-mould to the barrowfull of loam; a 10-inch potfull of crushed oyster shell, also a similar quantity of powdered mortar rubble, then with a good dash of sand thoroughly mix. Pot firm, using the rammer. When all are finished place the plants in a cool,

airy house on an ash bottom. Pot on selected one year old plants, and if necessary support the shoots by a neat stake. Water carefully through the winter months, avoiding the two extremes of wet and dry, as either are very injurious. Keep a careful watch for insects, and on all favourable occasions a free current of fresh air is most beneficial. When the plants are showing flower a little Carnation manure pricked into the soil, and soot water alternately, will greatly improve the quality of the blooms. Varieties are numerous, but the general favourites grown in quantity are Princess of Wales (pink) and Maggie Hodgson (dark red). The accompanying photo (see page 162) gives a good idea of the value of the former variety.

W. H. GREEN.

Crinums.

The species of *Crinum* have usually been regarded as plants for indoor cultivation, indeed even for warm house cultivation. The South African *C. longifolium*, far more generally known as *C. capense*, broke the illusion some fifty years ago, and survived several winters in the open air, in fact proving to be perfectly hardy when suitably planted. The next species to be tried in the open was *C. Moorei*, a plant which was introduced to Glasnevin about 1865, and in 1871 Sir Joseph Hooker writes about it—"And except the beautiful *C. capense*, I know no other but this now in open air cultivation." It had in fact then survived for five years planted in the open. In *The Garden* for 5th August, 1882, there is a descriptive notice of a new hardy *Crinum*, *C. Powellii*, sent out by Messrs. Henderson, of Maidale Vale. This is a hybrid, and in the notice above referred to the parentage is incorrectly given as *C. capense* × *C. ornatum*. It was in reality a cross between *C. capense* and *C. Moorei*, and proved to be quite



ASTER. GRANDIS (see p. 162)

At the Bush, Antrim.

hardy in most situations, harder in fact than its parents, and since its advent it is quite common to see *Criminus* grown as open air plants. It is a very beautiful and vigorous plant, and very free flowering, a notable addition to our garden flora. There are two varieties, one deep pink in colour, the other pure white. Since that date several additional species coming from such different countries as India, Africa, and Australia, have been tried in the open, and when suitably placed have lived for years, but their life can scarcely be called a happy one, and they cannot be relied on to flower regularly. In comparatively recent years Messrs. Damman, of Naples, offered plants of *C. pratense* and *C. Yennense*, stated to be new introductions, both of which were purchased for the Glasnevin collections. The former never gave good results, the latter has proved to be the finest of all hardy *Criminus*, a splendid plant in every respect. Reference to the illustration (p. 169) will give some idea of the vigour and free flowering character of this species, if I may call it species, as the Kew hand list relegates it to the minor position of a varietal form of *C. latifolium*, to which I may say it has no resemblance, and is in fact in every respect superior. It has been for about ten years in its present position, and continues to increase and flourish. The leaves are strong and upright, dark shining green, not easily damaged. The scapes are numerous, very sturdy and erect, and able to withstand severe storms, each carrying from 30 to 50 flowers, which are of good substance, pure white when fully open, and there are frequently, when the weather is fine, about a dozen flowers open at the same time.

A point to note in the cultivation of *Criminus* in the open is that they should be planted in well drained and deep soil, so that when planting it may be possible to cover the bulb and neck right up to the base of the leaves, which means from 18 inches to 2 feet in most cases. A protecting layer of leaf-mould, peat-mould, or fibre may be given in winter. Hard frost will kill all parts above the surface, but the underground portions remain uninjured, and start freely into growth in the spring. A position in front of a wall or building with a sunny exposure seems to suit them best.

F. W. MOORE.

The Rose Garden.

NOVEMBER is considered to be the best month for planting Roses. The soil is still warm enough to encourage the formation of new roots, thus giving the plants a chance of becoming established before severe weather sets in. Often, if the weather keeps mild and open, planting may be continued into December, but as a rule January, February, and early March are unsuitable. If for any reason planting cannot be done now, I would rather wait till the weather shows signs of becoming warmer in spring. Possibly it is better to obtain what plants are wanted now, so as to get first choice, and "heel" them in some vacant corner till they can be planted permanently. So much has appeared before in these columns about the preparation of the ground for Roses that it is unnecessary to repeat the advice already given. A problem that often puzzles the beginner is which varieties to plant. The number is so bewildering that even after visiting many

gardens, public and private, as well as nursery gardens, the novice is still puzzled to make a selection. All Roses do not do equally well in all soils, and although a good deal of uniformity in the quality and condition of the soil is brought about by cultivation, yet some local characteristic may favour one variety more than another. The private and amateur Rose growers in Ireland are notoriously shy of contributing their experiences to IRISH GARDENING, so with a view to assisting beginners in making a selection I asked several of the large trade growers to recommend a few of the best varieties for various purposes. Some of these growers are also noted raisers, and grow large numbers of varieties raised in other countries than Ireland. They also have a unique opportunity of knowing which varieties are most popular in districts far beyond their own, and also are able to compare one variety against another in a way few amateurs can do. Owing to considerations of space I limited the selection to six in each section. This obviously made the selection difficult, since with such a multitude of varieties it is hardly possible to choose six which stand out far ahead of all the others. However, I received most courteous and prompt replies, and append the selections herewith. Again, owing to lack of space descriptions cannot be given, but these are easily obtained from catalogues. The selections given below are not exhaustive, as some of our correspondents point out—there are other varieties quite equal to them—but our desire is to help the beginner, and we trust these lists may be useful.

Recommended by Hugh Dickson, Ltd., Royal Nurseries, Belfast.—For bedding and cutting:—Lady Pirrie, General MacArthur, Prince Charming, Mad. Jules Bouche, Gorgeous, Charles de Lapresse; and the best six Rambler varieties in our opinion are (older varieties):—American Pillar, Blush Rambler, Dorothy Perkins, Lady Godiva, Excelsa, Hiawatha; and the best six newer varieties:—Diabolo, Paul Pilon, Christine Wright, Leontine Gervais, Alex. Gerault, Newport Fairy.

Recommended by Wm. Watson & Sons, Ltd., Clontarf Nurseries, Dublin.—For bedding:—Betty, General MacArthur, Hugh Dickson, Lady Ashdown, Lady Hillingdon, Mme. Ravary. For cutting most of the best bedders are equally desirable:—General MacArthur, fragrant and erect. Lady Pirrie; the buds are lovely for cutting. Mme. Abel Chateaux; none more desirable to cut, and delightfully sweet. Mme. Edouard Herriot; this Rose never ceased all the season, and is wanted by everyone owing to its unique colouring (*Daily Mail* Rose). Mrs. Alfred Tate; no Rose has more charming buds than this; the stems and freedom of flowering render it indispensable for decoration. Prince de Bulgarie; very prolific; flowers borne upright on straight long stems. As you do not say if Dwarf Polyantha bedders are wanted, we add the best six of these useful types, flowering still in the open:—Ellen Poulsen, Gloire d'Orleans, Jessie, Orleans Rose, Roudhatte, Mrs. W. H. Cutbush. It is fairly easy to name the best six Ramblers, and we include only Wichuraiana, as they are the easiest for beginners:—Dorothy Perkins, American Pillar (which some one calls "the Rose for any back yard"), Coronation, Excelsa (much the best crimson), Dorothy Demison, and the new Sander's White, which is the best of the whites.

Recommended by Mr. G. N. Smith, Daisy Hill, Newry.—Good bedding Roses:—Caroline Testout, La Tosca, Mme. Edouard Herriot, General MacArthur, Mme. Abel Chatenay, Rayon d'Or. For cutting:—Comtesse du Cayla, Lady Hillingdon, Mrs. H. Stevens, Gruss an Teplitz, Mdle. Marie van Houtte, Zephira Drouhin, Ramblers:—Alberie Barbier, Blush Rambler, Excelsa, American Pillar, Dorothy Perkins, Una. I have not included Crimson Rambler in this section for the reason that it is so subject to mildew. If it was not, I would make it No. 1. But there is no Rose that will do what the old Fellenberg will—thrive for years in ground that is never manured and bloom freely from June to Xmas. For a blaze of colour, for distant effect, as a hedge or mass, there is nothing to touch it.

Recommended by Samuel McGredy & Son, Portadown.—For bedding:—Mrs. Charles E. Pearson, Mrs. Herbert Stevens, Lady Pirrie, Old Gold, Lieutenant Chaux, General MacArthur. For cutting:—Mrs. Herbert Stevens, Mrs. Alfred Tate, Mad. E. Heriot, Richmond, Mad. A. Chatenay, Isobel (new single). Ramblers:—Alberie Barbier, American Pillar, Dorothy Dennison, Dorothy Perkins, Excelsa, Tausendschon.

Recommended by A. Dickson & Sons, Ltd., Newtownards.—Six good Rambler Roses:—Dorothy Perkins, Dorothy Dennison, Excelsa, Hiawatha, American Pillar, White Dorothy. Six good bedding Roses (dwarf varieties):—Orleans Rose (poly. pom), Rodhatte (poly. pom), Liberty (H.T.), Madame Ravary (H.T.), Mrs. Aaron Ward (H.T.), Queen Mary (H.T.). Six good bedding Roses (medium height):—Red Letter Day, Donald MacDonald, Mrs. Weymss Quin, Lady Ashtown, General MacArthur, Caroline Testout. Six good Roses for cutting:—Lady Hillingdon, Madame Abel Chatenay, Grace Molyneux, Harry Kirk, Richmond, Lady Greenall.

The Arboretum.

AUTUMN tints are by no means conspicuous this season, at least up to the middle of October, and it looks as if the leaves of all deciduous trees and shrubs would be shed before any colour appears. A week of rough wind and more or less heavy rain lasting for the greater part of the week ending on the 14th did a great deal of damage, although no large specimens were blown down. Cartloads of small branches and leaves were stripped from trees and bushes, but we were thankful to get off so lightly. The trees which suffered most were willows, poplars, and particularly robinias, whose brittle branches snapped off like match wood. From this one would infer that robinias are not suitable for exposed positions although they are admirably suited for hot soils, and make elegant street and park trees.

There are numerous attractive fruits now noticeable about the grounds, particularly the Cotoncasters, C. Henryana, C. Applanata, and C. Franchetii are very bright, while some of the older evergreen sorts are also beautiful, as C. rotundifolia and C. buxifolia, &c.

The Barberries, too, help to make autumn interesting with their blue, pink, and almost white berries, while the bright scarlet berries of the common B. vulgaris and some of its varieties are not surpassed, or indeed equalled, by any recent introduction.

Lonicera Henryi—now becoming fairly well known—is always noticeable at this time with its clusters of purple-blue fruits. As mentioned

before in these pages, it seems to flourish best in a shady situation. As a wall shrub it is very pretty, and the fact that it flourishes on a shady wall makes it doubly valuable, as it is often a problem what to put there to give variety. As the planting season is now with us it may be useful to give a short list of shrubs which have been found suitable for a shady wall:—Clematis Armandi, Tricuspidiaria lanceolata, Azara microphylla, Vitis Henryana, Euonymus japonicus and E. radicans, Vitis quinquifolia, many varieties of Cydonia japonica, Viburnum odoratissimum, Lardizabala bitemata, various species of Jasminum, including J. nudiflorum, which flowers all winter in mild weather; Celastrus of various species, and, of course, Ivies, as mentioned in previous articles. Many of these, of course, flourish in sunny positions, but the fact that they will endure the shade of an east or north wall makes it possible to render such walls interesting, and leaves sunnier walls for plants which will not endure shade.

Those who desire to raise quantities of trees and shrubs must look out for seeds as soon as the fruits are seen to be ripe. Barberries, Cotoncasters and other fruits having the hard seeds surrounded by a fleshy covering may be collected and mixed with an equal bulk of sand or fine soil and left in a heap for some time till the fleshy portion has decayed away. If only a small quantity has to be dealt with, it is sufficient to briskly rub the sand and fruits together between the hands, thus separating out the seeds, when the whole may be sown together in pots, boxes or open beds, germination taking place in spring. Holly and Thorn are dealt with in the same manner, except that as they are known to take longer to germinate they may be left in a heap for six months or more, and thus take up less room than if occupying beds. The heaps should be turned occasionally. Should the space be available there is no objection to sowing all when collected. Early in the year some allusion was made to the value of half-decayed leaves for digging into nursery quarters, and also to the more fully decayed leaf-mould. A sufficient quantity of clean leaves should now be collected to provide for the future. Where there is much grass beneath trees it should be cut before the bulk of the leaves come down, otherwise it is difficult to collect them clean. Oak and beech leaves make the best mould for pots and boxes, while those of maple, lime, sycamore, chestnut, &c., are good enough for digging into the ground.

During open weather now the planting and transplanting of deciduous trees and shrubs may proceed apace. It is easy, of course, to recommend what should be done, but as a matter of fact many will have to do "as things will do with them," for in these days of shortage of labour, increased cost of material and other distractions we do well to keep going and make the best show we can.

B.

Jasmine.

'Twas midnight—through the lattice, wreath'd
With woodbine, many a perfume breath'd
From plants that wake when others sleep,
From timid Jasmine buds, that keep
Their odour to themselves all day,
But, when the sunlight dies away,
Let the delicious secret out
To every breeze that roams about.

Thomas Moore.

Hints for Amateurs.

By R. M. POLLOCK.

CLIMBING PLANTS. Among these can be found plants suitable for almost every aspect and many purposes. For covering garden walls, walls of dwellinghouses, bare stems of trees, sheds, outhouses, or old tree stumps, as well as pergolas and arches, or even light fences. A certain knowledge of the plants and their requirements is necessary to get the best results, and in these notes will be given a list of such plants and a short description, which may help intending planters. The plants named here are only those which will either climb of themselves, or twine, or which will only require very slight help and support. In another issue, possibly in that of December, a further list will be given of shrubs which either on account of their tenderness or their habit of growth are more suitable for wall cultivation than open planting. Neither lists can in any way be considered complete, but both of them may help.

In order of merit and popularity will come *Wisteria chinensis*. This plant must have sunshine and it must have warmth. It is slow to establish, but where happy and content it will live for centuries. It is one of the handsomest of our climbing plants, and was introduced to cultivation exactly 100 years ago. The long-hanging trusses of lilac flowers are beautiful, and an old wall or building clothed with these is certainly a sight worth looking at.

The Clematis must surely come next, as it holds a very important position in a garden, not only from its free habits, but from the very many and varied forms. *C. Jackmanni* is well known, and there are many named and good varieties of that species, but there are also many of the true species of Clematis which are very attractive and well worth growing. Most of the Clematises will grow in any aspect except due north.

Clematis patens, a native of Japan, is one of the early flowering species, with lilac-mauve flowers. It is not so much for the size of the blooms that this species is strongly recommended, but because both it and *C. florida*, also a native of Japan, are the two earliest to flower, which they do early in the summer.

The Clematis "Duke of Edinburgh," a rich purple, and "Stella," pale violet, are both garden varieties of *C. patens*.

C. Jackmanni is well known, and well deserves all its popularity. The flowers appear in late summer and continue into autumn, and these flowers are produced on the young growth, therefore any pruning should be to encourage this growth; but if growing freely, sufficient will be naturally made without any assistance of the knife.

C. Jackmanni Snow White, *C. J. superba* (deep violet), and *C. J. Mad. Edouard André* (a handsome bright red) are three good varieties.

C. flammula.—This is one of the species which can never rank as showy, but it has a very great attraction in its small white starry flowers, which are very sweetly scented and produced in loose clusters. The foliage is deep green, and growth strong, but never coarse.

The variety *rubra marginata* has creamy-white flowers edged with purple, and is also scented.

C. viticella, the "Purple Virgin's Bower," is another species which we could not do without.

Perhaps the variety *Ville de Lyon* is better known than the type, with its port wine red flowers of medium size, with a lovely velvety surface. The plant grows freely when left to its own way.

The variety *alba luxurians* has pure white flowers tipped with green, and flowers late in the autumn. It is a rather strong grower and requires plenty of room.

C. montana needs no recommendation, and nothing could be more beautiful than the masses of pure white flowers of this creeper in spring. It will grow literally anywhere, and climb up and over and into anything. It grows so strongly that some pruning must be done, but the flowers are borne just as much on the old as the new wood.

The variety *montana rubens* deserves more general planting. It is not nearly as rampant a grower as the species, but it is likely to become just as popular. The flowers are a pale pink, and in many of the forms the foliage has a reddish tinge. This form comes freely from seed, but often these seedlings vary greatly in colour, therefore where possible planters should try to see their plant in flower before purchasing.

Another variety recently introduced from China by Mr. E. H. Wilson, and known as *C. montana Wilsoni*, is a very beautiful form, flowering in September and October, with large waxy-white flowers. This plant is comparatively new to cultivation, and gardeners will watch with interest its appearance in the catalogues.

C. calycina, also known as *C. balcanica*, and *C. cirrhosa*, will appear very much the same to the ordinary gardener, and there certainly is not much difference. Both species are evergreen, and both have creamy-white hanging flowers. In *calycina* they are spotted on the inside. The flowers are produced in the winter, and both plants when once established will form a dense dark green mass.

C. calycina is a native of the Balearic Isles, but *C. cirrhosa* appears to be more widely distributed over the South of Europe.

C. paniculata, another introduction from Japan, of strong growth, with thick clusters of small star-like white flowers, strongly scented of Haxthorn. The plant is evergreen, with glossy dark green foliage. It is hoped to reproduce a photograph of this species in the next issue.

C. grata.—Here we have a native of the Himalayas, also with white flowers, but in much more scattered stiff clusters. Like the foregoing the flowers are scented. The plant is a strong free grower, and the foliage is much larger than in any of those already mentioned. It should be planted where it can have plenty of space.

Hemerocallis citrina Barronii.

The ordinary *H. citrina* has flowered remarkably well this year, and is a very handsome plant when doing well; the variety noted above, however, seems to have larger flowers produced quite as freely, and is immediately noticeable at some distance away. The fault of most of the Day Lilies is that they appear to produce a mass of foliage out of proportion to the number of flowers, but in the case of *H. citrina Barronii* the flowers at once attract attention, but whether this will continue to be the case in future years I am as yet unable to say.

DUBLIN.

* The plant in cultivation is really a hybrid *C. Joumiana* (see note in October issue, p. 145).

Hardy Plants for Cut Flowers.

THE supply of flowers suitable for cutting is a very important matter in all gardens, large or small. While some few people have an aversion to cutting flowers I believe the majority experience the keenest pleasure in being able to cull a few of their favourites and enjoy arranging them in receptacles of various sorts, thereby beautifying the rooms which are in constant use. The question of supply is not so urgent in large gardens where big quantities of many things can be grown both outside and under glass; but the owner of a small garden has a more difficult problem to tackle. He desires as many flowers as possible for cutting, over as long a season as possible, and at the same time he wants to have his garden gay. Want of space forbids him growing reserve stocks for cutting, and equally precludes him from growing many plants which are beautiful in the garden but do not last when cut. Obviously then the best thing he can do is to find out which are best for cutting and concentrate on these, for they will be quite as beautiful in the beds and borders as when cut, and by growing more of each the garden will be kept full. The following list, which does not pretend to be exhaustive, is an attempt to help those who may be in doubt as to what to plant.

Achillea ptarmica, Perry's Variety, a lovely white flowered variety, in bloom from June onwards till September. By cutting a few spray: occasionally a succession of bloom is encouraged. Height about 2 feet.

Aconitum japonica is obtainable in several colours, notably white, pink and rosy red. A beautiful border plant flowering from August to October, the flowers should be cut before quite fully expanded, a remark which applies to practically all flowers. Height from 3 to 4 feet.

Antennaria tinctoria, commonly called the "Ox Eye Clematis," has bright yellow flowers in heads, and blooms from June onwards for several months. There are also lemon yellow, golden yellow and cream coloured varieties. Height about 2 feet.

Anthericum Liliago produces masses of lovely white flowers in spikes during early summer, and is a most graceful plant; while *A. ranunculifolium*, with much narrower leaves and slender spikes, is not less beautiful. Flowering in June and July. Height about 1½ to 2 feet.

Asters. — Of these there is an immense number, many among the tall varieties being very beautiful, but for general purposes the dwarfier sorts are the best. *Aster amellus* has yielded numerous extremely beautiful varieties of late years, and they are unsurpassed for cutting or garden decoration. Among the best are *A. amellus* major, violet

blue; *rosens*, pink; *Perry's Favourite*, pink; *Preziosa*, dark violet; *Fleuve Bleu*, light blue; and *Riversdale*, rich violet. The height varies slightly from 2 to 3 feet.

Aster Thomsoni is a beautiful species with large pale blue flowers produced from July onwards, and thus comes in before the *Amellus* section, which does not flower till August and onwards into October.

Chrysanthemum maximum is a favourite, and has given many fine varieties. One of the newest viz., *Annie House* alluded to in last



Photo by

CRINUM YEMENSE (see p. 165)

R. M. Peacock

In the Royal Botanic Gardens, Glasnevin.

month's IRISH GARDENING, is excellent for cutting, as also are *Etoile d'Anvers* and Mrs. C. L. Bell. Height 3 feet. Flowering from July to September.

Chrysanthemum segetum fl. pl. is a recent acquisition which must become popular, as it produces large quantities of flowers like double white *Pyrethrums* throughout the summer and early autumn months. Length of flower stalks about 18 inches.

Chrysanthemum aliginosum, a tall grower, reaching 6 feet when doing well; might be rather bulky for a small garden, but is very valuable for producing quantities of white flowers in October.

Coreopsis lanceolata is a valuable species flowering all through the summer months. The flower heads are not quite so large as those of *C. grandiflora*, but are also yellow, and the plant is more truly perennial than the latter, a distinct advantage in a small garden. Height about 2 feet.

Echinops ritro, one of the Globe Thistles, grows about 3 feet high, producing in July, August and onwards fine steely blue round heads, which give a welcome bit of colour in the border and last a long time cut.

The *Erigerons*, often called Fleabanes, are a useful class of median growing perennials all very useful in the border and some of them well suited for cutting. *Erigeron speciosus* is one of the best, with heads of flowers having yellow centres and violet coloured ray florets; *E. macranthus* has violet blue florets, both flowering from early summer onwards. *E. speciosus* especially yielding flowers well into autumn. Many new hybrids have appeared of late years, of which I think *E. Quakeress* is one of the best, with pretty soft lilac flowers produced over a long period; another named *E. Ladham* has mauve pink flowers, and is quite an acquisition.

Eryngium dichotomum is a most interesting and pretty plant, reaching about 2½ feet in height, and producing numerous much-branched stems which, like the flower heads, are bright blue—a fine plant for cutting and makes a good companion to the *E. chinops* mentioned above.

Gum Mrs. Bradshaw, a new "Avens" introduced to gardens a few years ago, is a most valuable long-flowering plant producing immense quantities of fine double scarlet flowers all through summer; good for cutting or border. Height in flower 2 feet.

Helenium autumnale purpureum, a fine dwarf variety of the Sneezeweed, is most useful for cutting and also in the garden. The flower heads are yellow, opening in early summer and lasting for a long time. Height 2 feet.

Helianthus rigidus is an old favourite growing and flowering well in towns. It has been called the Prairie Sunflower and gives bright yellow flower heads on long stalks well adapted for cutting. It is rather inclined to spread too rapidly, so in a small garden should be carefully planted, so that it will not over run less aggressive plants. It is valuable, however, for its flowers in August and September. Height 3 to 4 feet.

Helleborus niger, the "Christmas Rose," is well worth attempting, even although not a success in all soils. Rather stiff retentive soil is necessary, and the plant dislikes disturbance, so should be planted where it can remain for some years, as only when well established will it produce its charming white flowers. Few sights are more

charming than clusters of white flowers nestling among the leaves while yet the days are short and dark and cold.

Heucheras are now quite indispensable in all gardens where hardy flowers are valued. The wild species are not so valuable as the new seedlings and hybrids which have been raised of recent years, although for colour *H. sanguinea* is hard to beat. Among others we have *H. Flambeau*, with fine branched spikes of bright rose flowers; *La Perle*, white flushed pink; *Zabeliana*, rosy-pink; *Rosamunde*, coral pink; *Pluie de Feu*, brilliant red; *Kilfield White*, a good white variety; *Pink Pearl* and others not less beautiful. Average height about 2 feet when in flower.

Paeonias are among the most beautiful of hardy plants flowering chiefly in early summer, and offering a wide range in colour. For present purposes I think the double varieties of *P. albi flora*, commonly called Chinese Paeonies, are the best. Certainly some of the singles are surpassingly beautiful, and where space could be afforded they could scarcely be left out, but the doubles last longer both on the plant and when cut. There is a bewildering selection of varieties, so intending purchasers must make their own choice from the catalogues of any of the firms advertising hardy plants in the pages of IRISH GARDENING.

Pyrethrums, both single and double, are splendid for cutting, and produce large numbers of flowers. Some of the best singles are:—*A. M. Kelway*, bright rose; *James Kelway*, fine rich red; and Mrs. Bateman Brown, deep crimson. Doubles are—*Aphrodite*, white; *La Vestale*, bluish white; *Lord Rosbery*, good red; *Queen Mary*, pink; and *Solfaterre*, pale yellow.

Rudbeckia speciosa, often called *R. Newmannii*, is a most valuable plant, flowering in the end of September and on into October. The flower heads have deep dark brown "centres" surrounded by rich yellow florets, and at once attract attention. Very free flowering and growing only some two feet high, this is a most valuable plant in a small garden.

Scabiosa caucasica and its variety *Perfecta* are quite essential. The flowers, of a beautiful lavender blue, are produced continuously all through summer and autumn, and are exceptionally useful for cutting; 2 to 3 feet in height.

Sidalcea Rosy Gem is a fine plant for a moist position, producing spikes of rosy pink flowers in great profusion.

Solidago caesia is one of the most graceful of a rather numerous and often coarse family. The slender yet wiry stems, dark brown in colour, carry dainty spikes of yellow flowers from the end of July onwards for many weeks. Height perhaps 3 feet.

Statice latifolia, the so-called Sea Lavender, cannot be omitted on account of its immense, much branched inflorescences, composed of innumerable small lavender coloured flowers which last, when cut, for months, being still ornamental when the flowers are dried.

Thalictrum minus adiantifolium is valuable for its pretty fern-like foliage, which is most useful for arranging with other flowers.

Gypsophila paniculata and its double variety should both be grown as well for their light and pretty effect in the garden as for their value as cut flowers to arrange with others.

Tritomas, or as they are properly called *Kniphofias*, are most effective in the garden and

when cut. The smaller growers only should be chosen for a small garden, notably *K. corallina*, with spikes of coral red flowers in July and August; *Nelsoni*, coral scarlet and orange; and *MacOwani*, with coral red flowers of great beauty. Average height 2 to 3 feet.

The above selection would, I believe, provide flowers in the garden and for cutting for quite six or seven months, and as all are perennials there is no reason why the smallest garden should not be gay through summer and autumn and the house well supplied with flowers.

HORTUS.

Notes for Novices.

VEGETABLES.—The stems of Celery plants should now be earthed up finally, selecting dry weather conditions for this operation. Be very careful to prevent the soil reaching the hearts of the plants. Plantations of cabbage should be examined and blank spaces in the rows made good. Use the hoe freely between the plants to destroy weeds and promote healthy growth. If slugs are troublesome, sprinkle lime freely along the rows. Plants that are still in the seed bed may be transplanted carefully in nursery beds, with the object of making fresh plantations in the spring. Choose a sheltered position and ground that is not excessively rich. Allow a space of 6 inches each way between the plants. These late seedlings will prove valuable for a succession to those in plantations already made. Cauliflower plants in cold pits must be ventilated freely, both night and day. This is very necessary to keep the plants stocky. Parsley growing outdoors will require protection from severe frosts. The overgrown foliage must be removed in order to encourage young leaves to develop, because these withstand the winter better than those which have fallen over and are in contact with the soil. In fine weather stir up the soil between the rows. All the stems of Asparagus will now be ripe and ready for cutting down to the ground as closely as possible. During frosty weather a dressing of short stable manure should be placed thickly over the beds.

FRUIT.—All kinds of fruit trees may be planted now in fine weather. Gooseberries are always in request, and as with currants, it always repays to top-dress the roots with rich manure each autumn, allowing the litter to remain on the surface until early spring, when it may be lightly forked into the ground. Both these kinds of bush fruits should be planted 5 feet apart each way, and for preference the rows should run north and south. Black currants will thrive in almost any situation. A north aspect is the most suitable for obtaining late black currants, and in point of both flavour and size of berry, the fruit on bushes in a north aspect is equal to that from those in warmer positions. The work of pruning fruit trees may be commenced this month, provided the wood is sufficiently matured. Early varieties, planted in the most favourable situations, should be operated on firstly. As both the cherry and the plum fruit on spurs as well as on the young shoots of the previous year, their methods of pruning are similar, and may be considered together. Fan training is as a rule preferable to

any other method for these stone fruits, and the branches should be 6 to 8 inches apart according to their strength and the size of the foliage of the particular variety. If the trees are in a healthy condition, and have plenty of fruit buds on the young wood, the largest of the spurs may be removed or very much thinned, as fruit produced on the young wood is usually superior both in size and flavour to that produced on spurs. The morello cherry fruits chiefly upon the young shoots of the current year or on close spurs formed on the two-year old branches, and should be pruned and trained much in the same manner as peaches and nectarines. The gooseberry fruits on spurs, the young shoots, and those of two or three years. The best fruits, however, are usually obtained from the shoots of the previous year. A sufficient number of young shoots should be retained at equal and moderate distances, and for their full length, unless they are unduly long. The bushes should be open in the centre to allow the sunlight and air to enter. Suckers proceeding from the stem or roots should be removed. Red and white currants may be pruned in almost a similar manner to the gooseberry, the difference being that the leading shoots should be shortened about one-third, according to their strength and position. Black currants require little, if any, pruning beyond thinning the older branches.

FLOWER GARDEN.—When the soil is in a good condition, take the opportunity to forward the work of planting Roses. For new beds thorough drainage is essential. The ideal soil for these flowers is a rich loam of a greasy nature, and it should be dug 2 feet to 3 feet deep. A heavy clay soil may be improved by incorporating with it burnt earth, wood ash and mortar rubbish. If the soil is of a light texture remove the bottom spit and replace it with good turf—the top-spit from a heavy pasture land for preference—and well-rotted cow-manure. The soil of established beds usually becomes sour in time, and after three years the plants are benefited by being lifted and replanted. In this case the beds should be deeply dug, removing a portion of the old soil and replacing it with good turfy loam. Place well-decayed manure in the bottom and sprinkle basic slag or bone meal on the surface. Before replanting shorten the strong roots that are deficient in root-fibre, and also cut back the long growths, for these would be liable to damage by high winds and in swaying have a tendency to loosen the plants in the ground. Plant firmly and just deep enough to cover the junction of stock and scion with soil. Apply a mulch of short litter to keep out frost and to retain the greater amount of warmth in the soil.

M. D.

Beekkeeping.

THE temperature during the first half of October—although for the most part a wet and windy period—enabled bees to secure a good supply of pollen from ivy, and on some of the warmest days nectar was also procured from the same source. This has re-started breeding in many stocks that were broodless at the end of September, and it also afforded a favourable opportunity to give syrup to stocks that were still bare in winter stores.

The season has been a remarkable one in many

ways, especially for the varied results obtained by beekeepers within a few miles of each other; some having secured about 10 sections per hive, while others about two miles distant have only got about fifteen moderate quality sections in the first crate, and in a few cases nothing but drawn out empty comb. The failures, where not due to considerable loss of brood through starvation during the first half of July, were nearly all due to swarming after the honey flow started. Stocks that had stores to draw from and were fed during the worst of the weather, kept the frames well-filled with brood and gave less trouble with swarming after the honey flow set in than those that had suffered from starvation, and in consequence were partially reduced in brood. The sudden flooding of the brood frames with nectar after a spell of adverse weather is a predisposing cause of swarming, especially if the queen is aged or failing. Some of the failures, however, were not so much due to difference in management as to the difference in their locality being exposed or sheltered from the prevailing northern winds; those situated in well sheltered southern aspects and in proximity to big untrimmed hedges and jungles where blackberry blossom was plentiful fared much better than those equally well managed in exposed and colder positions. A few exceptionally well placed and managed stocks have finished 60 sections, and I know of one stock that has finished 80 marketable sections. Swarms that were lived on the parent stand in June, and were given partially-filled crates to draw from for a start, or were fed till the honey flow set in, have in most cases finished as many sections as unswarmed stocks. Beekeepers in districts depending principally on white clover have fared badly. Taken all round, the total crop is barely one-quarter of the average for the past five years. Those working for run honey have fared even worse than those who work entirely for sections.

The advantages of adding empty crates on top of partially filled ones, and removing the crates as soon as finished, was never more clearly demonstrated than during the past season. Several beekeepers who anticipated the honey flow would last to get three crates filled and were tempted to follow the orthodox method of adding empty crates under partially filled ones, had the misfortune to have more drawn out and uncapped than finished sections, *i.e.*, the second and in some cases the third crate was added underneath at a time when one or two crates were as much as could be finished. The best results have, in every case, been obtained by adding empty crates on top, not only in quantity of finished sections but in quality as well. The experienced beekeeper who can make a fairly good estimate of the amount of nectar obtainable can generally be depended on not to err in over-supplying by adding empty crates under partly-filled ones. Four hives, each with three crates, came under my notice near the end of August, which had been tried by adding empty crates under drawn ones, and at that time had an average of about 12 finished sections each: the remainder being drawn out and partly filled with uncapped honey. There was then no possibility of getting all finished, even if September had been warm enough, as there was nothing but a scanty pasturage on ragweed left in the district.

There was an unusually big casualty list of young queens lost on their mating trip during the cold, wet weather, which prevailed from the

middle of June till the 18th of July. Previous to that I had several reports of stocks being queenless although in some cases the unmated queen had been fully three weeks hatched and was still in the hive, an unusually large percentage had been lost and the stock left queenless. Beekeepers who practice rearing queens, by forming nuclei from early swarmed stocks, are seldom caught without fertile queens in reserve to replace those lost or defective; but those who trust to luck are often very unlucky.

PETER BROCK.

Fairview, Enniskillen.

Allotment Gardens for Workers.*

ALLOTMENTS are gardens provided for workers apart from their homes, chiefly to enable them to grow vegetables for their own use. Successful growers are often able to supply the needs of their families and have a surplus of produce which finds a ready sale in most towns. The allotments may be of any size up to 5 acres, but are usually 10 to 20 rods in area, and are formed by dividing a field into suitable plots with narrow walks between. By arranging the allotments in groups the cost of fencing is reduced and the allotment holders are able to join together for mutual protection. Sufficient potatoes can be grown on a 20 rod plot to last the family the winter through.

The best land available should be obtained, but excellent crops have been grown on vacant building land in towns and cities. In many cases loads of stones and rubbish have been removed by plot holders before it was possible to sow seeds, but good crops have been then obtained.

Owners of building lands or fields near towns can render valuable service to the neighbourhood by letting such land to groups of workmen to cultivate as allotments. In many cases a fair rent must be asked, but there is much land which could be used as allotments which is now in a derelict condition, and which if let free of rent for six or nine months to men anxious to cultivate it, could bring in a moderate rent thereafter.

HIRING LAND.

Wherever available land is to be seen, attention should be drawn to its possibilities, and the co-operation of owners and workmen obtained to establish allotments upon it, and thus render it fully productive. Building land is usually let on condition that it is given up at short notice if required for building; a low rent may be expected when land is taken on these conditions. Other land can sometimes be obtained on lease from public spirited landlords or public bodies who realise the value of allotments to workmen. At the present time many women are working their husband's allotments very successfully, and even very young children are able to be of some little help in weeding, picking up the potatoes or similar light work, in their holidays. In selecting holders for allotments a preference is given to men with large families, as the high cost of food

* Copies of this leaflet can be obtained free of charge on application to the Hon. Secretary, Vacant Land Cultivation Society, 20 Kildare Street, Dublin.

presses more hardly won them. Boys who have worked in a school garden for one or two years can be of great use in helping their parents to cultivate allotments, and in some cases such boys have managed a small allotment for themselves.

HOW TO BEGIN.

Those who want allotments should interest their fellow workmen in the movement, and secure their promise to take plots for cultivation when suitable land is found. The cost to each allotment holder can be ascertained by reckoning that one acre will provide eight allotments. Thus a field of 4 acres rented at £3 per acre could be let to 32 holders at 7/6 per plot, plus a proportion of the cost of the necessary fencing, and the rates, if these are charged. Local councils are usually willing to remit the rates on land used as allotments for workmen, in wartime.

When a sufficient number of workers are found willing to rent plots, the local councils and other owners of property should be approached, with a view to obtaining land from them on favourable terms.

When it becomes known in the locality that a number of workmen are anxious to cultivate allotments it frequently happens that land is offered for the purpose by a local property owner. Failing other means of getting their wants known, a deputation of men wishing to obtain allotments might wait on the local council to ask the members to use their influence in securing land. Employers have found their work people obtain great benefit from the cultivation of allotments in their spare time, and many of them have made arrangements for hiring the land and sub-letting it to their employees for this purpose.

Workers whose employment is of a seasonal or casual nature should be provided with allotments wherever possible, at the lowest possible rent. The Vacant Land Cultivation Society invites owners of unused land to lend it for casual workers free of cost.

INSTRUCTION AND ADVICE.

Frequently men will be found willing to take allotments who lack the necessary knowledge for cultivating the plots. To help such people some Technical Instruction Committees have appointed instructors to give advice to allotment holders. In one of two towns the instructor planned and laid out the plots and now assists in their management.

In order to arouse interest in the cultivation of allotments public meetings could be held; as a rule local speakers can be found to explain the advantages of such cultivation, and the Vacant Land Cultivation Society is ready to send experts to advise and speak at meetings in districts where there is a prospect of a scheme being started. As a preliminary to such meetings a local committee should be formed to make arrangements for the holding of a meeting to ascertain the probable demand for allotments and the prospect of obtaining suitable land.

Information regarding allotments, the cultivation of vacant land, the organization of societies, and copies of rules for the letting of plots, can be obtained from the Hon. Secretary, Vacant Land Cultivation Society, 20 Kildare Street, Dublin.

Reviews.

Plants in Health and Disease.*

THIS excellent little book is really a summary of a course of lectures given by Messrs. F. E. Weiss, D.Sc., A. D. Imms, M.A., D.Sc., and Wilfrid Robinson, M.Sc., all of the University of Manchester. Two are botanists and one is an entomologist, and all are well known scientists.

The object of the course was to aid amateurs and small holders to get the most out of their gardens at the present time, when it is acknowledged by all that it is essential that every scrap of land should be made to produce its utmost.

The lectures were frankly designed for those who had no previous experience of cultivation and who knew nothing of the methods employed by professionals to combat the diseases and pests with which most cultivated plants are afflicted.

In the first seven chapters F. E. Weiss deals with the general features of plant life, including nutrition, propagation, roots, stems, and leaves, methods of reproduction, flowers and their formation, &c. Chapters 8 to 13 are by Wilfrid Robinson, and treat of fungoid diseases of plants and their remedial treatment, the diseases of many of our commoner plants being taken as types. Injurious animals other than insects are dealt with by the same lecturer.

Chapters 14 to 17, by A. D. Imms, deal with injurious insects and means to be taken to get rid of them.

It is impossible to speak too highly of this most excellent publication, which at the low price of 1s. 6d. should be in the hands of all who are interested in the proper cultivation of plants, whether for use or ornament, and who wish to get the maximum out of their gardens.

There is nothing of the highly technical and dry nature which frightens many from opening any book bearing on scientific matters; on the contrary, every page is readable, and a useful work of reference is always at the command of all who are wise enough to become possessors of a copy.

The Suburban Garden.†

MR. F. M. WELLS has done a great service in writing a new edition of "The Suburban Garden and What to Grow in It."

In describing how the book came to be written, Mr. Wells relates how he told a friend of his intention, and the friend in approving said:—"A good many people would take more interest in their gardens if they had something definite to start on. Tell these what to put into their strips of garden—that's the main point—and give them some idea as to arrangement." We agree with the friend and believe that Mr. Wells has "hit the nail on the head." Being an amateur himself and having succeeded in making what must be a beautiful garden in a small space, he is the better qualified to tell others how to do it.

The border of perennial plants receives due

* "Plants in Health and Disease." Longmans, Green & Co., 39 Paternoster Row, London, E.C. Price, 1s. 6d. net.

† "The Suburban Garden," by F. M. Wells. Published by Sampson Low, Marston & Co., Ltd. Price, 2s. net.

attention, and the author wisely avoids the mistake of recommending a medley of things, but chooses a few good plants and shows how to grow these well. The rock garden, wild garden, Roses, &c., are all treated of in the same careful way. Mr. Wells writes in simple language, and for that we thank him, for his book makes most enjoyable reading. Vegetables are not included in the author's garden, though he does not forbid their inclusion in others. At the present time many small gardens are given over to vegetables, but sooner or later the flowers will return, as in ordinary times the owner gets far more enjoyment in growing and arranging his flowers.

Though not detracting in any way from the purpose of the book we would like to see greater accuracy in speaking of bulb and corns. Madonna Lilies, for instance, have bulbs not corns; and there is room for improvement in the use of capitals—see *Rudbeckia* and (n) *Nicotiana*.

These are mistakes, however, which in no way affect the purpose of the book, which is full of common sense and devoid of trashy illustrations. Printed in clear type on good paper and neatly bound, it can be recommended to suburban gardeners, and is not without interest to professionals more favourably situated.

Illustrations of the British Flora.*

NEW EDITION.

A NEW edition of this indispensable work will be welcomed by botanists and students as well as all those who are interested in identifying the wild flowers of our own country. The original figures drawn by the masterhand of W. H. Fitch, F.L.S., were incorporated in Bentham's excellent Handbook of the British Flora, and subsequently published separately as a companion to that volume. From time to time additional figures by that fine artist W. G. Smith, F.L.S., have appeared illustrating additions to the Flora, and now Messrs. Lovell, Reeve & Co. have wisely issued this new edition, incorporating the latest additions and bringing the nomenclature into line with the most recent conclusions of competent botanists. Several new features appear which add immensely to the value of the illustrations and which will be of the greatest value to students. The present arrangement follows Hooker's edition of Bentham's Handbook. The opening pages are devoted to "classification," showing the main divisions of the Flora, and then follows a brief synopsis of the natural orders, which should be extremely useful to students in running down their specimens. The diagrams on page viii, showing the floral structure of the sub-classes, are an admirable feature. In the body of the work the synonyms have been carefully worked out, while the addition of the common names when known will meet the new frequent demand for such.

Armed with this new edition of the Illustration and either Bentham's Handbook or Hooker's Students' Flora, or even Hayward's Botanist's Pocket Book, any individual should be able to master the Flora of his district and far beyond.

* "Illustrations of the British Flora." New edition. Lovell, Reeve & Co., Ltd., 6 Henrietta Street, Covent Garden, London, W.C. 9s. net.

Needless to say the style and production of the work leave nothing to be desired. Messrs. Lovell, Reeve & Co. publish the Botanical Magazine and other highly scientific illustrated books, and their name is a guarantee of excellence.

The Newer Ireland.*

The author of the above-named pamphlet has kindly presented us with a copy. It is non-political, and deals in the main with the duty of the individual as a citizen. To quote from the introductory remarks: "Its main concern is with topics systematically neglected by all Irish political organisations and by all Irish politicians"; and again from *Some Conclusions and Suggestions*. "This is a humble effort to induce Irishmen to think—and act."

"Ornamental Concrete Products."

THE above article forms a special supplement to the August number of "Concrete and Constructional Engineering," a monthly periodical largely devoted to explaining the many advantages of concrete in building and engineering.

The supplement deals with the use of concrete in ornamental work such as garden vases, ornamental pillars, &c., all forming useful adjuncts to the garden when properly placed and not overdone. One can imagine many ways in which concrete would be useful in the garden; for instance, often steps are necessary leading from one level to another, and nowadays many gardening folks require large numbers of frames which, with the exception of the lights, can be quickly made from concrete. Much information concerning how to use concrete is contained in the supplement, which can be purchased separately for threepence from the publishers at 4 Catherine Street, Aldwych, W.C., the editorial offices being at 8 Waterloo Place, London, S.W.

Journal of the Board of Agriculture and Fisheries, Vol. 23, 1916

THIS volume contains several items of interest to horticulturists.

At page 360 a scheme for the distribution of Scotch seed potatoes among allotment holders and small cultivators in Somerset is explained. The idea belongs to the County Agricultural Instruction Committee, who believed that by a change of seed the crop could be greatly increased. Details are given of the cost of the potatoes and carriage on same, and despite bad weather in Scotland and the suspension of traffic between England and Scotland for military reasons, 187 tons were received and distributed in Somerset. The varieties were Arran Chief, Up-to-Date and Dalhousie, and at the time of writing very favourable reports were being received regarding the condition of the crop.

At page 367 useful information is given regarding the preservation of fruit, and on the previous page Mr. H. Vandelmanns deals with carrots and turnips as catch crops in Belgium.

* By Oscar J. Kelly-Walsh. On sale at Messrs. Easons. Price 3d.

The Month's Work.

The Fruit Garden.

By T. E. TOMALIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

PLANTING.—November is the best month in which to plant most kinds of fruit trees, provided that suitable weather occurs during the month. Never plant when the ground is wet and sticky, but have everything in readiness so that the first spell of fine weather may be taken advantage of. Suitable stakes, for each tree and bush to be planted, should be prepared on wet days, and a good heap of fine soil containing leaf-mould should be kept under cover; a few shovels full of this worked in amongst the roots of each tree when planting will encourage new roots to form quickly. Small fruits, such as gooseberries and currants, should be planted in various aspects so as to prolong the fruiting season. Single or double cordons of these may be planted on a wall facing north, and from these gooseberries may be gathered throughout August, whilst red and white currants will hang quite fresh until November. Moreover, the very finest fruits are obtained from cordons, especially where judicious thinning is practised. Odd corners, such as the angle formed by a north and a west wall, may be utilised for a few bushes of black currant. These will do well in almost any situation if treated liberally, and will give splendid late crops in such a position. Bushes of gooseberry and red and white currant should be planted at least five feet apart. Black currants should be given seven feet at least. Raspberries are best planted in rows six feet apart, and the plants may be put at three feet apart in the rows to begin with. In a couple of seasons they will throw up enough canes to allow of their being trained to the wires at about nine inches apart. The wires for raspberries should be stretched from stout larch poles standing seven feet high; these will then serve to support nets to protect the fruit from birds. In planting all kinds of fruit trees care must be taken to spread out the roots at their proper level, covering each layer of roots separately and keeping them in a horizontal position. The finest soil should be used when the roots are being covered, leaving the rougher portion for filling in the hole afterwards. Never plant too deeply, as a rule about four inches of soil is an ample depth to cover the topmost roots. Rush and standard trees should be secured to stakes immediately after planting, care being taken that the stake is so placed that there will be no danger of it rubbing against the stem or branches during windy weather; and also that the ties are not so tight as to cut into the bark when the stem begins to swell with active growth.

PRUNING.—This subject will be more fully dealt with in next month's notes, but Morello cherries should be attended to during November as soon as the leaves have fallen, so that the necessary tying may be done before the weather becomes too cold for this work. These fruit on wood of the previous season's growth, so that all old wood not required to extend the tree may be cut out, and the young wood tied in at from four to six inches apart, distributing it evenly over

the wall space to be covered. The young shoots should be retained at their full length and not shortened, except those that have grown over the top wire. Old trees that have borne heavy crops will be greatly benefited by a top-dressing of fresh loam, to which a little well-rotted manure and bone meal may be added. Carefully remove a little of the old surface soil first, but do not damage the roots in so doing. The fresh compost may then be spread evenly over the border to a depth of two or three inches, and made firm by treading.

THE FRUIT STORE.—Apples and pears in the store should be examined at frequent intervals, and all decaying specimens removed. It is essential to keep the atmosphere in the fruit room sweet, but drafts of air should be avoided, as tending to cause evaporation and consequent shrivelling of the fruit. Where marketing is practised each kind should be cleaned as it reaches maturity. In this way the highest prices may be commanded, whereas if left too long in the store, the mid-season varieties especially soon deteriorate and quickly become unsaleable. Owing to war freights having reduced imports, and to the short home crop, prices for apples are ruling very high this year, especially for selected fruits packed in the standard bushel and half bushel boxes.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany, Dunsany Castle, Co. Meath.

ASPARAGUS.—The withered growths should now be cut down, the beds cleared of weeds, and a good top-dressing of well decayed farmyard manure applied to the soil.

BROAD BEANS.—Make a sowing of beans any time during the month. Dwarf Fan and Early Mazagan are two good varieties for autumn sowing. The lines may be made on an early border, at a suitable distance apart; and as the spring advances they will help to protect more tender crops planted between the lines. Draw the lines 3 inches deep, and before sowing coat the seed with red lead, to protect them from rats and mice.

CAULIFLOWERS.—Protect cauliflowers and early broccoli as advised in last month's calendar. Plants that are showing signs of forming their curd may be lifted and planted thickly in cold frames, the plants will then develop during the early winter, and form a welcome addition when variety in table vegetables are few.

PEAS.—Where the soil is of a light nature a sowing of peas may be made early this month. Immediately the growth appears over the ground protect with evergreens or bushy sticks. Round-seeded varieties are best suited for an autumn sowing. On heavy damp soil little benefit is obtained from an autumn sowing, as they seldom give satisfactory results.

RHUBARB.—Some roots should now be lifted for forcing; three year old crowns are best suited for the purpose. One of the most important points is to dig up the crowns some few days before they are required, and expose them to the weather before being placed in heat. A dark cellar with a temperature of 55° to 60° will be found suitable for forcing the roots. Victoria and

Hawke's Champagne are two good varieties for forcing. Place the roots nearly close together, scatter a little soil amongst them, and water occasionally.

SEAKALE. Place several roots nearly close together in large pots, and stand them in a temperature of 15° to 50°. Exclude the light by turning an empty pot over the top; when the roots have started into growth remove the pots to a dark cellar, with a temperature of 55° to 60°. Seakale will not withstand a high temperature at first, and heat should only be gradually applied.

GENERAL REMARKS. Trench or dig all ground as it becomes vacant. Digging should be done well and deeply; a greater thickness than from 1 to 5 inches should never be taken before the spade. Clear out all withered leaves and rubbish from among winter greens; this will help to harden the plants and make the garden tidy.

Value of Immature Potato Tubers as Seed.

HOW TO OBTAIN IMMATURE SEED.

It has been suggested that, in order to obtain immature seed, planting should be done about midsummer. This plan was adopted in the Garforth (1906) experiments, the immature seed planted that year having been obtained from tubers planted on 20-21th June and raised on 18-19th October, 1905. The cutting off of the tops when green, so arresting further development of tubers and allowing them to remain in the ground until autumn, has also been suggested, but the best practice will be found to be to plant at the usual time of the year and to raise the crop early.

The Wye experiments show that the disease causing leaf curl can be largely checked by using immature seed, and "blight" does less damage to the crop on account of the more advanced growth which has been made at the time of year when the plants are attacked by the disease.

At the present time the advantages which the planting of home-grown immature tubers would give should specially appeal to small holders, market gardeners, allotment holders and others having small plots of land, on account of the difficulty in obtaining good seed. The extra crop which could be obtained in the year would probably compensate for any loss in weight which might occur by raising the tubers before they were fully grown.

There is no difficulty in storing immature seed. In the Wye experiments the early lifted tubers were allowed to lie on the ground exposed to the weather for about three weeks. When dry they were gathered and placed in barrels, which were afterwards stored in a covered shed until the following year. In the autumn of the year, 1 cwt. of these was put into a clasp along with other seed. The tubers were quite sound when taken out in the following spring.

The following account of the experiences of a Lincolnshire grower who has followed the practice of using home-grown immature seed will be found valuable:—

"28th June, 1916. At first all potatoes go to market in two grades as picked off the field. Later as the markets come down they are only

taken according to, say, a 1½-in. riddle. The remainder are put on a 1¼ or 1½ in. riddle, and put straight into boxes and kept for seed. I grew Duke of York for ten years in succession from the same stock and in the same garden. I found they grew more quickly and vigorously than from matured seed. The crop was lifted at the end of June or as soon as (or before) any disease showed in the tops. The small ones were taken out and the others placed in trays, stacked in the open until October, when they were brought in for the winter. These Duke of Yorks did very well every year, keeping healthy and vigorous, and producing a good crop. At the end of ten years they were planted in the field and allowed to mature. The seed saved was also planted in the field, but did not produce a good crop, and the crop from that year's seed was practically a failure. The stock quickly grew out when the seed was allowed to mature. I later extended my experiment to the field, the variety being Eclipse. I found that several times grown (from Scotland) seed grew as strongly as Scotch seed and were ready to lift a week sooner than other matured seed. My brother has a few acres of Sharpe's Express from seed taken up in July last year, and boxed in this manner. They are twice grown from Scotland, but look strong and rank in top and are doing well, considering time of planting and weather conditions. They may lift four or five tons in about a fortnight. Compared with mature seed, immature seed gives a crop of more vigorous growth, more freedom from disease and grub attack, an earlier and heavier crop, and the tubers are larger.—*Journal of the Board of Agriculture*, Sept., 1916.

Notes.

Trials of Summer-fruiting and Autumn-fruiting Raspberries.

TRIALS of both summer-fruiting and autumn-fruiting raspberries will be held at Wisley. Three plants of each variety should reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey (station—Horsley, L. & S.W. Ry.), by November 15th, 1916, accompanied by the necessary forms of entry (one for each variety) which may be had on application to the Director.

Geranium × Russell Prichard.

THIS lovely hybrid, which was exhibited some time ago at one of the R. H. S. shows in London, is likely to prove popular with lovers of hardy plants. When in England in July I had the privilege of seeing a bed of it in Mr. Maurice Prichard's nursery at Christchurch, and was much struck by the enormous number of flowers produced—so numerous in fact as to present an unbroken mass of soft pink. The silvery leaves inherited from one of the parents G. Traversii formed an admirable setting to the flowers, while robustness of constitution ought to come from the other parent, which I think was G. sanguineum. Certainly in the sandy soil and hot climate at Christchurch it was one of the most outstanding plants in a nursery full of good things. B.

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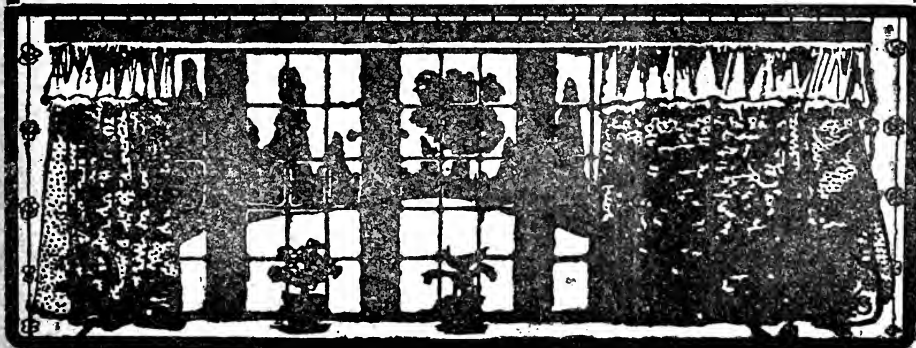


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With the recognition and approval of the Admiralty and the War Office the VEGETABLE PRODUCTS COMMITTEE has been formed under the presidency of LORD CHARLES BERESFORD for supplying Vegetables, Fruit, Jam, &c., to the NORTH SEA FLEET, in connection with which the IRISH BRANCH has been registered at the Head Offices, London, and through whom all enquiries respecting Ireland's contributions to the project should be made.

"The most ample expression of our thankfulness can never repay the debt which the people of these Islands owe to the gallant Officers and men of the Navy, who, by their ceaseless vigil on the danger-strewn waters of the North Sea, are maintaining us in comparative peace and quiet."

The Committee of the Irish Branch appeal for help in maintaining, as far as possible, regular supplies to the NAVAL BASE allocated to them, both by Gifts of Vegetable Products and contributions of money to supplement the supplies by purchase in the Market. Such gifts are urgently required to keep up the supply during the trying winter months.

The Hon. Secretaries invite enquiries, and will be pleased to give information and particulars as to forwarding gifts, on application. Remittances to be made to MR. D. L. RAMSAY.

**Offices of the Royal Horticultural Society of Ireland
5 MOLESWORTH STREET, DUBLIN**

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1916

EDITOR—J. W. BESANT

"The Sunny South."

WITH these seductive words the Great Southern and Western Railway draws travellers to "see their own country" by spending their vacation in the South of Ireland, and certainly it *was* very sunny when we were there last July. We had the great enjoyment of visiting several of Nature's choice bits, and surely, if the weather were usually so kind, no more pleasant country could be found.

Leaving Dublin in a downpour, it was still raining at each station where our train stopped. Although not a betting man, at Malrow the writer staked the sum of one penny on its being dry when the train reached Cork. Being anxious about this large stake he hastened to the station yard as soon as the train stopped and was delighted to find it bone dry. The rest of the party was meantime busy at the luggage van, and when we all came out it was pouring rain! The writer's word was, however, accepted, and the copper duly changed hands. With this fortuitous omen our trip was naturally a success. The next morning we set forth for Fota in high expectation, and were far from disappointed. Mr. Beckett was kind enough to devote some time to us, and we worshipped with due reverence the magnificent trees. There is a grandeur about the trees here and a luxuriance that is not equalled elsewhere in these countries. *Cedrus atlantica glauca* and *Cryptomeria japonica* were as fine a pair of lordly specimens as one could wish to see. *Pinus Montezumæ*, *P. insignis*, *Dacrydium Franklini* and *Abies orientalis* were also noticeable in the large collection of coniferae. The large evergreen beech for which Fota is famed, *Embothrium coccineum* still showing some flowers, *Benthamia fragifera*, *Eucallonia langleyensis*, *Azaras* in variety, were a few items which no one could miss, and in the

fern section the *Dicksonias* were noble examples. Coming back towards Cork we next visited Mr. Beamish's well known garden. We made no notes, but will not forget the lovely specimens of *Leptospermum Nicholli* and *L. Chapmanii*. There are larger ones in this country, as, for example, those at Rostrevor House, which we have not seen when in bloom, but it would be very hard to beat Mr. Beamish's. Not only well flowered, they possess a healthy furnished appearance which would be looked for in vain in less favoured districts. *Actinidia chinensis* was an ideal ramper for a sloping cliff, clothing the stone densely with handsome foliage, and commencing to flower. The rock garden is, of course, a spot to live near for a whole season in order to gain any idea of its contents. Formed, we believe, on the site of an old quarry, it is very naturally arranged, and the plants thrive well under Mr. Williamson's care. We noted *Campanula W. H. Paine* in better form than we have ever seen it, but it would be foolish to embark on detailing varieties where the collection is so extensive.

Leaving Cork, we remained some days at Glengarriff. We have often boggled at the spelling of this name since a former visit, and were relieved to find local usage indicate that one could not possibly be wrong; one or two "r's," one or two "f's," and the terminal "e" being charmingly optional. Before boarding the Glengarriff steamer at Bantry a burly member of the R.I.C. ran after us, the only strangers leaving the train, to ascertain our names and business. Having apparently satisfied this vigilant officer that we had no sinister designs we were allowed to go on. Proceeding from Glengarriff to Parknasilla we found ourselves delighted with the surroundings of the

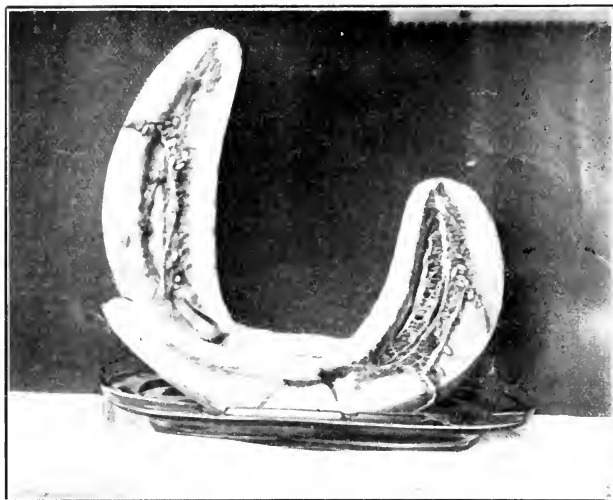
G. S. & W. R. Hotel, situated as it is on wooded slopes beside the water of Kenmare River. Parkpasilla is an excellent centre for horticulturists, as there are so many places of interest within easy reach. We first visited Colonel Hartly's estate at Reen-na-Ferrera, only a mile from the hotel. Approached by boat or road, the house itself is at the water, sheltered by wooded islets and overlooking beautiful inlets of the sea. It was a brilliant day; we never saw the Dropmore *Anchusa* look so blue anywhere, and here we made our first acquaintance with the typical vegetation of gardens in Kerry.

Bamboos.
Dracenas.
Acacias Phormiums. Gunneras. Aralias and Dicksonias were all prominent. There were some wonderful rock garden ledges, arranged in tiers by Nature, each ledge sloping inwards with deep soil behind. One portion of this recently uncovered will make a fine rock garden when planted.

Our next pilgrimage was to row across to Dr. Heard's island—Rossdohau. On both of the cultivated islands which we visited in the vicinity the ground is high towards the S.W. with cliffs facing the Atlantic. The north-east portion of the islands is somewhat sheltered and, having made ample protection with pines and various forest trees, the underwoods are capable of untold wonders in this mild climate. After threading one's way through the winding paths and dense underwoods, in sharp and most pleasing contrast one suddenly emerges, surfeited with tropical growth, on the heathery uplands fully exposed to the S.W. and open Atlantic, where the views of sea and mountain are glorious in fine weather. At Rossdohau we blundered on a lovely winding woodland walk, the trees high

overhead and all around us a veritable jungle of Bamboos, *Leptospermum Escallonia*, *Ozothamnus* and Myrtles of giant character. The weather was perfect, and, in walking along the drive, a delightful effect was produced, where for a considerable distance tall pines stood between us and the brilliant smilite blue of the sea. When the tide is high the view from a spot near the house is one of the prettiest imaginable, backed by the rounded hills of the Cahra Mountains. The grounds abound with tropical vegetation, and everything so natural that no part of the island is

restricted to the usual style of a cultivated garden. We could not but admire the proprietor's taste, the house itself being appropriately covered all over with what one may call the plant of the country—*Fuchsia Riccartonii*. We saw Myrtles which must be 25 feet high, *Aralia Sieboldii* 15 feet, *Daphne indica* was doing well, *Aspidistras*,



PROBABLE HYBRID OF MELON (see pages 180 and 185).

Photo by R. M. Pollock.

Yellow Callas and, of course, White Callas, *Daturas* in a thriving state, *Benthamia fragifera*, *Corypha* and *Phenix* palms, *Dicksonias*, the Crawfordsburn fern, and we measured the common St. John's Wort 3 feet high about a clump of Pampas. Roses, *Vitis* and *Escallonias* in places were strangling the trees, the red-tipped foliage of *Hypericum glandulosum* was fine, and *Eugenia Ugni* was noticed in large handsome bushes. What this island would be if left absolutely to Nature for a few years beggars description.

Then Lord Dunraven's island—Garinish—a half-hour's row from the hotel. We saw it under two conditions. One afternoon in pouring rain—Kerry rain: with everything dripping the *Osmundas* were jewelled with rain drops,

and from the cliff the view of the sound or deep chasm which separates the island from the mainland was very grand. Going back on a brilliant afternoon, two days later, the approach to the island was a very lovely sight, a beautiful sheltered bay wooded to the water. On the island there is a large collection of rare shrubs and trees similar to those which flourish in other places in the district. *Hydrangea acuminata* was in fine form, and in the height of the *Hydrangea* season there must be a good show here, as the varieties are numerous and doing well. We specially noted the big *Vitis*-like climber—*Actinidia chinensis*, *Polygala dalmaniana*, *Acer Hookeri*, *Embothrium coccineum* still in flower. *Pittosporum Mayi* (about 30 feet), *Olearia insignis*, and a fine clump of the brilliant *Erica cinerea coccinea*.

Another afternoon we walked six miles to the Blackwater, a well known beauty spot between Kenmare and Parknasilla. There once more we proved Mr. Birrell's statement that "Ireland lives under the microscope," for another conscientious constable, scenting strangers, dismounted from his bicycle with his "Beg pardon, sir, would you be staying with So-and-So?" (naming a local landed proprietor)—a very Irish man too polite to put his official request for the cause of our presence in more direct language. Curiously enough he did not so much as glance at our ineffectual parcel, which contained the only "find" we made—namely, a very bright form of the Scotch beath r, whose reddish pink colour caused it to stand out prominently amongst a bunch of the ordinary type. This was our second interview with the R.I.C., and was not so remarkable after all, as, since the disturbances of April, the tourist traffic is almost non-existent in the district and most of the big hotels all but empty. Empty hotels and the destruction wrought by the storms of November, 1915, were the only

depressing experiences during the trip. Although Parknasilla is, of course, fairly well known we can heartily recommend it to horticulturists who have not been there. They will like a quiet spot far from the railway, and will find much to interest them in so beautiful a place where only clegs are vile. J. M. W.

Pergola at Ballinacor, Co. Wicklow.

The enclosed photo is of a pergola erected last winter, and consists of 400 feet run of native oak



PERGOLA AT BALLINACOR.

and 1,850 feet of larch. The upright posts are of oak, and are sunk into the ground to a depth of 2½ feet, and are 7 feet above the ground, which allows plenty of room to walk under without stooping when the climbers cover the top. The top consists of larch, this being the most suitable wood for the purpose on account of its straightness.

The posts were sunk in the ground in the month of September 1915, this being the best of the autumn months for such work, as then there is no trouble in making the posts firm providing the soil is on the dry side.

The top was put on during the winter months, when ordinary garden operations could not be proceeded with on

account of snow, heavy frost, or when the condition of the soil did not allow planting or treading on it. The following is a list of climbers planted at the foot of the posts on each side of the walk and alike in variety:—Roses—Crimson Rambler, Alberic Barbier, Dorothy Perkins, Excelsa, Hiawatha, Mrs. M. H. Walsh, Paul Transen, Wichuraiana Henry, Sander's White, Clematis Edouard André, Jackmanii, J. alba, Madame Edouard André, montana rubens, Lonicera punicea, Jasminum nudiflorum, Mucklenbeckia complexa, Periploca Græca, Polygonum Baldschuanicum, Vitis coignetiae and Wistaria sinensis

New Fruits.

SOME years ago I looked through the catalogue of J. L. Childs, of Floral Park, New York, and was attracted by the following paragraph:—

VINE FRUIT.

Garden Lemon.—This new vegetable is a great boon to all those sections of the country where fruit is scarce, as its fruits make delicious preserves, sauces, &c., and are more easily prepared. This is something like the Vine Peach, but needs no Lemon in putting up, as it is much more acid. Cultivated like the musk melon. Pkt. 5c.

Vine Peach.—This sort has fruit the size of a large peach and of a bright orange colour. Flesh firm, and when cooked with lemon to give it a slight acidity, makes fine pies, sauce, sweet pickles and preserves. Easily grown and a good keeper. Stored in a cool, dry place they keep fresh and good for several months. Pkt. 5c.; oz. 15c.

I ordered some seeds of both. My gardener, Jas. Fletcher, sowed the seeds in an ordinary hot-bed in February, and treated them exactly like melons. In August the fruit was ripe. The leaves are like those of a melon, but smaller. The fruit of the Lemon Fruit looks like a lemon; you cannot eat it uncooked, but I found that when peeled and stewed like an apple it makes a delicious dish; the flavour is peculiar; perhaps I should say it is not unlike a pine apple; I found it excellent for a dessert preserve. The vine peach is very similar; it is of a more orange colour and smaller; I do not see any advantage in it over the garden lemon. I grew melons in the same frame and cucumbers in another frame in the same yard; but I never noticed that they being there made any difference.

The result was the same every year until 1915. In 1916 I sowed the seeds as usual; the spring was exceptionally damp and cold, and the Vine Peach did not come to anything. The Garden Lemon grew as usual, and bore the usual kind of flowers and leaves; but instead of producing Garden Lemon fruit, it bore only three fruits which looked exactly like cucumbers in size and shape, and were of a grey-green colour. When the first one ripened I cut it open, and found that the flesh smelt and tasted exactly like a melon; the colour was pale yellow, like that of a musk-melon. I wrote to Childs, and asked him if he could account for it, but it was quite new to him. So I gave the two other fruits to Sir F. Moore, thinking that they might interest him as a botanical curiosity.

F. W. PENNEFATHER.

Double-flowering Border Plants.

DOUBLE-FLOWERING plants are invaluable in the border, owing to the fact that they remain in bloom longer than most singles. While many of the doubles are rather heavy for cutting purposes, a number of varieties are very suitable for the purpose. As it is by the transformation of stamens into petals, that double flowers are produced, no seed is available from the plants, and consequently root division and cuttings are the only means of propagation; the seeds, however, from the semi-double forms of some species give a fair percentage of double flowers.

Achillea ptarmica flora pleno is very poor and hardly worth growing, but the varieties *The Pearl* and *Perry's White* are charming border plants possessing double white flowers, the latter and newer variety being particularly fine.

Alyssum saxatile flore pleno is a useful plant for the front of the border; the yellow flowers are very pretty in the early part of the year. In a similar position *Arabis albidia plena* is also excellent in spring, the double white flowers, carried on long stalks, being very freely produced.

The perennial *Asters* are notably absent of double flowers, there being only one or two varieties. *Beauty of Colwall* is a really fine double *Aster*, with flowers of a clear lavender-blue; it is extremely free-flowering, and forms a nice clump about 4 feet in height.

Of the border *Campanulas*, *C. persicifolia alba plena* is by far the best. The lovely pure white flowers are borne on erect stems about 3½ feet in height, a beautiful plant for the border.

Clem. coccineum, one of the best border plants having scarlet flowers, possesses a number of forms, while not being really double are very near so. Of these *Mrs. Bradshaw* is really the best. This variety is of recent introduction, and is a deservedly popular plant. It is of a high decorative value, either as a border plant for the display it gives there or as a cut bloom. The flowers are very large, averaging about 2½ inches in diameter, and are of a brilliant scarlet.

The double-flowering form of *Gypsophilla paniculata* is a great improvement on the single form; while possessing all the light and graceful characteristics of the single variety, it has the advantage of lasting longer in a cut state. For many decorative purposes, such as in the arrangement of cut blooms, the double form will be found invaluable owing to its lasting qualities.

During late autumn the perennial *Sunflowers*,

with their different shades of yellow, are the most conspicuous plants of the border. *Helianthus multiflorus plenus* is a good, compact grower, with large double yellow flowers. *Bouquet d'Or* and *Soliel d'Or* are two extremely good varieties, the flowers are larger and prettier in form than in the ordinary double form, the plants are also taller.

The double Sweet Rocket. *Hesperis matronalis flore pleno*, is a charming plant of neat habit, about 3 feet in height, bearing flowers either white or purple, which are borne in dense compact spikes. The flowers, possessing a delicious fragrance, are excellent for cutting.

In the background of the border the tall stately *Hollyhocks* are very effective, and double-flowering forms can now be had in almost every shade of colour. They are more effective in the border than the singles, as they last longer in bloom, and more flowers are expanded on the spike at the one time.

Lychnis chalcedonica, the single scarlet, and its variety *alba*, both possess double forms. The double scarlet form is the best known, and is a good border plant; the double white is very pretty, but is not very well known: both are excellent for cutting.

By intercrossing a number of natural species, a considerable number of double-flowering varieties of the *Paony* have been raised. These hybrids are very free-flowering, and in point of colouring can be had in all the shades of white, pink and red, some of which possess a certain fragrance. The number of varieties is considerable, and each year sees the addition of many new and improved varieties. A few good varieties are:—*Bonaparte*, large flowers of a brilliant rose; *Louis Van Houtte*, rich crimson; *Mm. Furtado*, carmine; *Duchess de Nemours*, fragrant flowers of a beautiful white; *Mary*, a good pure white.

Very handsome and free-flowering are the double *Potentillas*. They are very suitable subjects for the fore-ground of the border; they form large clumps from which rise the branched flowering-stems, bearing fine double flowers of great brilliancy, ranging through the many shades of yellow and crimson.

The varieties are too numerous to mention, one of the best of them being *W. Rollison*, with flowers of a rich reddish-orange.



ERIGERON QUAKERESS.

Photo by S. Rose.

The double-flowering forms of the florists' *Pyrethrums* are indispensable for the border, where during June and July they give a grand display. The flowers are produced in great profusion, and are invaluable for cutting. By thinning out all weak-growing flowering-shoots, the remaining flowers are greatly improved in size and quality. The following are a few good varieties:—*Aphrodite*, large white flowers, one of the best; *Mont Blanc*, an earlier flowering variety, is also a good white; *La Belle Blonde* is a fine white, having very large flowers; *Alfred*, a good large-flowering crimson, and *Regale*, bright crimson red.

The foregoing list of double flowers is by no means com-

plete, but it will give some idea of the types of double-flowering plants most suitable for the border.

F. R.

Erigerons.

DURING the past few years some fine varieties of *Erigerons* have been raised; they are all perfectly hardy, of a neat habit of growth, and are very floriferous. They are excellent plants for the border, where, as they are not very tall—averaging from 1½–2 feet in height—they should be given a place toward the centre of the border, and they give a pretty display from July to August.

They thrive well in most garden soils, but the

be, ter the soil the finer the plant. These newer varieties are well worth looking after, and greatly improved blooms are obtained by the judicious thinning out of the flowering shoots. The flowers last well when cut, and are excellent for table decoration.

Propagation is best effected by division of the roots, which should be done during October or March.

E. Quakeress is a particularly fine variety, about 2 feet in height, with flowers of a pretty shade of lavender-blue, which are borne in great abundance. Asa Gray, one of the newer forms, is very good, having flowers of a pretty apricot-yellow. Bearing large rose-coloured flowers, Edina is of high merit also, while speciosus superbus possesses flowers of a beautiful rich mauve.

F. R.

Seakale.

DURING the forcing season is a convenient time to secure a supply of root cuttings of this choice vegetable. When the plants are lifted for forcing, some of the best of the side roots can be taken off: these should be cut into lengths of about six inches, making the upper cut straight across, and the lower cut slanting. This will distinguish the different ends at planting time. Packed closely in boxes of light soil or sand, they can be kept in a cold frame until March or the beginning of April, when they can be planted in their permanent quarters.

F. R.

Arbutus furiens.

FIRST discovered during Beechey's voyage in 1825, this shrub does not appear to have been introduced to cultivation until the "fifties" of the last century, when Messrs. Standish & Noble, of Bagshot, obtained seeds collected near Concepcion in Chile. Whether it has been in cultivation during the whole period that has elapsed since then I do not know, but it has never been common. The first time I met with it was in Messrs. Dickson's Nursery at Chester in 1896, where it was cultivated in a cold greenhouse. Since then I have several times seen it in the Cornish Gardens and in Sir John Ross's collection at Rostrevor, whence was obtained the fruit-bearing branch now figured. So far as I can ascertain this is the first time the fruit has been illustrated, at any rate in this country. There is no fruit-bearing specimen in the Kew Herbarium.

Originally called *Arbutus furiens* by Hooker and Arnott, in 1834, it was, a few years later, shifted by the same authors to *Gaultheria*. In 1856, Hooker figured a flowering spray from the Bagshot Nursery in the *Botanical Magazine* as

Pernettya furens (*sic*). In gardens it is some times called "*Pernettya ciliaris*," but the true plant of that name is a Mexican shrub with smaller leaves and the usual solitary (not racemose) flowers of the *Pernettyas*. Our present plant is now regarded generally as an *Arbutus*.

It is an evergreen shrub, probably at least 4 or 5 feet high eventually, with bristly young shoots. The leaves, curiously hard and leathery in texture, are $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, mostly ovate pointed, dark green above, pale and with a scattering of dark bristles beneath. The flowers are dull white, urn-shaped, densely packed on axillary racemes 1 to 2 inches long, opening in April and May. The fruit is a wine coloured berry a quarter of an inch wide, orange-shaped, closely packed on the raceme and containing numerous tiny oblong seeds. The name "*furiens*" was suggested by the Indian name "*qued-qued*," signifying madness, the fruits when eaten being said to cause delirium.

At Kew this shrub just misses being hardy, and, after several trials, we have ceased to hope for its success out-of-doors, although it has sometimes survived two or three winters. I have, however, had very healthy specimens from Hampshire, and there are probably few localities in Ireland where it would not be hardy. It likes a peaty or light loamy soil and abundant moisture. I expect, like many Chilean shrubs, it objects to lime.

W. J. BEAN.

Arbutus furiens is a plant not often seen in gardens, though both for flower and fruit it is a very desirable shrub. It comes from Chile, and seems to be quite hardy in a sheltered place. The specimen at Rostrevor was got from Mr. T. Smith (Newry) under the name of *Pernettya ciliaris*, but was subsequently identified by Mr. Bean, when he was last in Ireland, as *Arbutus furiens*. The fruit is produced in close clusters of small berries, which are pink in colour, and which give the plant in autumn an ornamental and distinct appearance. It is evergreen, the leaves being thick and coriaceous in texture.

Another species of the same genus, also from Chile, called *Arbutus espinosa*, may be mentioned. It is hardy in shelter, and in outward appearance is more like a *Pernettya* than an *Arbutus*. The berries are formed singly on the plant, larger than those of *A. furiens*, and are of a dull red colour. Unfortunately it fruited badly this year and a branchlet is not available. It is evergreen, with small, dark-green, shining leaves, and it has been planted close to a *Pernettya*, so that the differences between the two plants can be easily seen.

JOHN ROSS OF BLADENSBURG.

Notes for Novices.

VEGETABLES.—The principal work in the vegetable garden now will be the digging and trenching of all vacant ground. The manure required for the various plots should, if possible, be wheeled on to the ground during hard, frosty weather. Before commencing to dig or trench, the alleys around the plots should be cleared of all weeds by means of the spade, at the same time making the path level as the work proceeds. Take out a trench at one end and wheel the soil to the opposite end of the plot, emptying it out just beyond where the last opening will be made. In digging one spade deep always keep a sufficiently wide opening in front of the spade, so that the manure which is being spread out in the trench can be covered with at least six inches of the soil, otherwise the manure may be interfered with during planting operations in the spring. Where trenching is being carried out, say two to three feet deep, spread out the rankest of the manure in the bottom trench and above this a layer of the more decayed manure between each layer of soil. The bottom spit should be turned up on the surface, as roughly as possible, so that the influences of the winter weather will pulverize it before spring time arrives. Never dig when the soil is over wet or in a pasty condition. Make a sowing of cabbage lettuce in a warm greenhouse. After germination takes place, remove the boxes on to a shelf near the glass, so that the plants will not become unduly drawn.

According to requirements, seakale crowns may be brought in and planted in 9-inch pots. Stand the pots underneath the greenhouse stage and apply a thorough good watering with a rose-can. Rhubarb crowns intended for forcing should be exposed to the weather for a few days after being dug up. Beside the warm piping in the greenhouse will be found a suitable place for forcing. Water each crown with tepid water and entirely exclude from light. The present is a good time to trench and prepare ground for new plantations of rhubarb in the open. As the plants are likely to remain in the same plot for several seasons, the soil should be trenched two feet deep and two layers of manure applied. The bed should then be left exposed to the weather

until March, when the plants should be put out in rows five feet apart, leaving four feet between the plants in the row. A careful examination of all onions in store should be made, so that bulbs which are becoming soft or growing out may be removed for immediate use. The remaining bulbs should be given plenty of ventilation and kept as dry and cool as possible.

FRUIT.—Continue to plant and fill vacancies amongst wall trees unless very cold weather renders the work impracticable. Trees that are unproductive or in any way unsatisfactory should be carefully examined and, if deemed necessary, lifted, the drainage made perfect, favourable soil added to the border, and the trees replanted. It is preferable in every respect to do this work now rather than defer it until the spring. Take advantage of every favourable opportunity to forward the work of pruning and tying in both pears and plums, and also, if necessary, to dress the trees with an insecticide. The pruning of orchard trees, whether standard or bush, should now be begun. Trees that have been carefully trained for several years and are in fruiting condition will not require much attention beyond the removal of a shoot or branch here and there, but standard trees that have not been regularly trained may require a good deal of pruning. Remove all shoots or branches that cross each other and thin any that are overcrowded, particularly in the centre of



ARBUTUS FURIENS FROM ROSTREVOR HOUSE.

Photo by R. M. Pollock.

the tree, which should be kept well open. Shorten and thin the spurs retaining the plumpest and best buds. When these are near the base of the spur they should be retained in preference to buds nearer the end. Keep the atmosphere of the fruit-room as fresh and buoyant as possible by the free admission of air in favourable weather.

FLOWER GARDEN.—Plants of Lily of the Valley may be lifted and replanted. When once established these plants grow and flower well for years without much care or attention. In gardens the plants are frequently neglected, though both the foliage and the flowers are much finer on well cultivated specimens. After four or five years the plants become overcrowded and should then be lifted, sorted into sizes and replanted. It is a good plan to lift a quarter of the bed each year, then a portion of the plot will always be in good

order. This system is easily worked when the crowns are dug up annually for forcing. In choosing a site for new beds, do not select one with a southern aspect, for the plants do not require full exposure to sunshine during the hottest part of the day. Let the ground be dug deeply and manured heavily. If the soil is heavy in texture, mix a quantity of decayed leaves and grit with it. Planting may be done whenever the soil is in a suitable condition. Plant firmly in rows nine inches apart and allow about three inches between the crowns, which should be just below the surface. When the work of planting is completed, cover the bed with a thin layer of leaf mould. Leaves fallen from deciduous trees should be collected and stored. Rotten oak and beech leaves provide good material for potting purposes, whilst leaves of other trees will be useful for mixing with strawy manure in the making of hot-beds.

Garden paths should be well rolled and irregularities in the surface made good. Sweep and roll lawns as often as circumstances permit, but do not use the roller when the turf is very wet. Impoverished lawns are greatly benefited by the application of liquid manure or a dressing of well-decayed manure and fine soil. Overhaul mowing machines, taking them apart and cleaning the various portions. Oil the running parts, and afterwards readjust the blades in readiness for another year. M. D.

Hints for Amateurs.

By R. M. POLLOCK.

IN the last issue of this paper the Hints for Amateurs were chiefly composed of notes on various species of Clematis. This month notes must be made of a few more plants suitable for the same purposes, but which are either of a clinging or creeping nature, or which only require slight support.

The Honeysuckles—*Lonicera*—are all easily grown and not fastidious as to aspect. *L. periclymenum*, the common honeysuckle or woodbine of our hedges, is a good hardy plant, and when given a little care and attention is just as good as many rare and expensive ones, but because it is the variety growing in the hedges, many people think it cannot be good enough to put in their garden or on their house. A variety of this catalogued as *L. periclymenum rubrum* is a good red form, and both will do well on a shady wall or up the bare stems of trees.

L. brachypoda (*japonica*) *aurea reticulata* is the well-known small golden veined-leaved plant so often seen climbing and twisting its long slender shoots through other plants on walls. It will do well in sun or shade.

L. japonica Halliana is one of the most popular and best varieties, and is practically an evergreen. The flowers are produced on the young wood, and it is suitable for an east aspect.

A climbing and clinging evergreen, seldom seen in gardens, is *Ercilla volubilis*, a native of Chili, but which will grow either on a warm or a shady wall. Its flowers are not conspicuous, being dull purple in close racemes, but they are strongly scented of Primroses. This plant adheres to a wall like the ivy, is evergreen, and has glossy green foliage.

There is a very large selection of beautiful autumn colouring plants among vines—*Vitis*. Into this genus come some very well known creepers. The common Virginia creeper, *Vitis quinifolia* is inclined to get untidy unless carefully trained, but colours well and grows freely.

Vitis inconstans (*Ampelopsis Veitchii*) is well known, and it will cling to any wall; it colours brilliantly, and when once established only requires plenty of root room. There is also *Vitis striata*, known in gardens as the Evergreen *Ampelopsis*, which will cling closely to walls. All the other vines mentioned in these notes are deciduous and lose their leaves every winter.

As well as these well-known forms, there is a very handsome species, *Vitis vinifera var. purpurea*, which in the autumn has deep purple leaves, very much sought after for house decoration. It is a handsome plant, but an untidy grower. Young plants of this are often slow in starting, but when once established they will give little trouble.

V. Thunbergi, a native of Japan, is one of the large-leaved vines, with true vine-like foliage and red stems. This variety makes long shoots, but not very strong, and does best on a warm wall.

V. armata, as its name implies, is armed with through bristles. The leaves are large, long and pointed, and they turn a beautiful red in the autumn. It is a native of Central China, and requires a sunny position in which to colour well.

V. Henryana is one of the small-leaved species, with beautiful marbled velvety leaves. This species clings to supports in the same way that *V. inconstans* does. A graceful and attractive plant, but not hardy in exposed positions, and it must have shelter.

V. Thompsoni, another small leaved vine, smooth, the older shoots dark green, and the young ones a beautiful wine red. It is hardier than the foregoing, and a free grower.

Solanum jasminoides, a native of Brazil, but quite hardy in most sheltered and warm aspects in Ireland. From the summer on into winter the slender shoots of this plant are covered with loose trusses of starry white flowers. It needs slight support, as it will not cling of itself. Its growth is very free, and it is evergreen. A most desirable plant for light work.

Beekeeping.

By PETER BROCK, Fairview, Enniskillen.

THE closing month of the year is a dormant period for bees, but it is a fitting time for retrospect and studying the lessons to be learned from the past season, which from the beekeepers' point of view was very short and disappointing. The only redeeming feature about it, especially for those who were favourably situated and succeeded in securing a fair return in honey, was that there has been a better demand and the price has been higher than has been obtainable for many years past. There is, however, owing to the high price of fruit preserves and butter, more honey being retained for home consumption than usual. The increase in the number of stocks in frame hives is much less than we have experienced for many years past. There was less swarming, and, owing to the scarcity of nectar, high price of sugar, hives and appliances, there was everywhere dis-

played the tendency to keep down increase of stocks by returning the swarms that came off in June. In most cases the swarms that were returned in a few hours after coming off, after removing all queen cells and giving increased ventilation and more room in crates or supers, settled down to work for the remainder of the season without giving further trouble. Some of the best yields have this year been obtained from stocks that swarmed once and had the swarm returned. In a good season the same procedure would be almost certain to end in considerable loss of time, and that may be during the best part of the honey flow, through the persistency with which returned swarms refuse to settle down to work. The changeable weather and scarcity of nectar assisted the bee-keeper in restricting the increase of stocks and having the hives well-crowded with bees when the honey did set in, in a way that he could not possibly manage it under better bee-weather conditions.

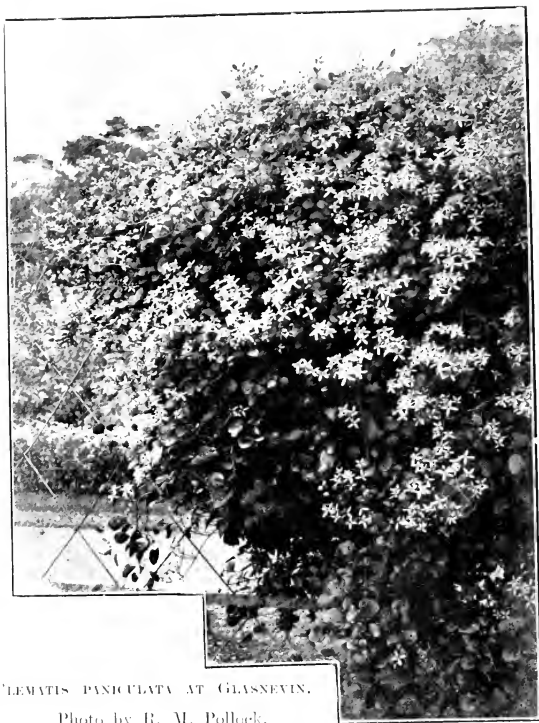
There is a good deal of diversity of opinion regarding the clipping of queens' wings. Some assert that the queen is injured by having her wings clipped, and for this reason many are superseded by the bees; while others maintain that the shortening of the wings does not affect her egg-producing capacity in the least. If the clipping is carefully performed and not more than two-thirds of the wing removed with small sharp scissors, it does not seem to injure them in the least. In any case the practice is gaining in popularity, especially with those who have farming operations or of other business to attend to during the day, and with those situated near high trees where swarms give trouble by clustering on inconveniently high branches, necessitating considerable climbing or scaffolding to capture them, and sometimes seeing them abscond before they can be secured. The principal objection to clipping the queen is that she may be lost the first time she leaves the hive with a swarm, unless someone sees the swarm rising who can put her in a skep or box, which

should then be placed on the stand of the parent hive; the bees forming the swarm and the bees returning to the parent stand will join the queen, and the swarm will settle in a few minutes. I have frequently met with a swarm accompanied by clipped queen having been under the hive from which it issued unknown to the owner. The surrounding of hives where queens are clipped should be kept free from long weeds or grass, so that the queen may be more easily found by the owner, or by the bees returning after missing her.

The bees being confined to the hive for long periods at this season, any re-arrangement of hives for short distances may now be safely carried out, care being taken not to cause any disturbance to the bees when moving hives.

Any spare time should be devoted to the making of hives, boxes for nuclei, and extracting supers. The measurements of a standard hive should be closely adhered to, otherwise the making of hives should be left to those who can make them to hair-breadth accuracy in measurements.

Attend to removing snow from roofs of hives before it thaws. Shade entrances from direct sunshine while snow is on the ground. Remove leaves or weeds from proximity of hives so that the surface may be clean and dry.



CLEMATIS PANICULATA AT GLASNEVIN.

Photo by R. M. Pollock.

American Melons a Probable Hybrid.

THE genus *Cucumis*, to which the cucumber and melon belong, is one which seems to vary much under cultivation, and advantage has been taken of this fact by cultivators to develop, and fix, many marked varieties to which distinctive names are given. In the case of the melon we have in the United Kingdom adhered rather rigidly to a certain marked type, but in sunnier climes, especially where open air cultivation is not only possible, but preferable, the variation in types is much more divergent. Naudin and

others studied, and classified, these types, and described over half a dozen well marked varietal sections. In America much attention has been given to the section known as *Cucumis Melo var. chito*, and there are several forms known as orange melon, melon apple, vine peach, vegetable orange, garden lemon, largely cultivated. These varieties differ from our cultivated melons in being comparatively scentless, and rather unpalatable if eaten in a raw state. They are used cooked as a vegetable, or for making preserves, and are said to be excellent when so used. Here they are rarely grown. Mr. Pennefather, of Colbinstown, grows some each year in frames, and his gardener, Mr. Fletcher, is a skilful cultivator of these, and secures excellent crops. The specimen illustrated has departed in a marked manner from the shape and appearance of the "garden lemon," and is in fact intermediate in shape and appearance between the "garden lemon" and one of the short, fat, American cucumbers, grown in an adjoining frame, except that the fruit is much more curved than either of these. Mr. Pennefather surmises that there may have been intercrossing between a melon and a cucumber, a supposition which is not at all improbable, and which the appearance of the fruit, both before and after it was cut, certainly pointed to. F. W. M.

The Arboretum.

DURING open weather planting may still be carried on, but often at this season sharp frost intervenes when planting cannot be done satisfactorily. Much other work, however, can be attended to. Winter pruning may be commenced, and the removal of old or duplicate trees can be proceeded with when the ground is unfit for planting operations. Even in quite small gardens or grounds there are often trees or shrubs to be got rid of, either to make room for others or simply because the shrubberies have become overgrown. Every advantage should be taken when other work cannot be done to get all rough work of this kind finished. Firewood is very welcome now, when coal is so dear, and many of the branches of shrubs as well as the larger parts of trees can be used as such. Rough trimming may be done on the spot, while the final preparation for firewood may be done under cover during inclement weather, and so no time is lost and nothing is wasted. The more twiggy portions of the branches may, with a little trimming, be made into useful stakes for peas, runner beans and herbaceous plants, where such are grown. The stakes should be graded into sizes to facilitate their use during next spring and summer. All this is work which can be done under cover where suitable open sheds exist.

Grass edgings may also be attended to except in hard, frosty weather. These get frayed and broken very frequently and destroy the appearance of the roads and walks. Nothing so enhances the look of a garden or pleasure ground as well kept walks with clean, well kept grass verges. Roads and walks, too, whether large or small, should be repaired where necessary, and frequently rolled when soft, so that an even unbroken surface is formed, pleasant to walk on and capable of supporting heavy traffic. The abnormal rains during October and early Novem-

ber revealed weaknesses in drains and catch pits, many of which became choked with sand and leaves, resulting in the water overflowing into places where its ill effects may not be seen just at once. These deficiencies should now be made good, clearing the catch pits of all rubbish and opening the drains wherever they were observed to be defective.

The arboretum, despite the dull season of the year, maintains its charm, and when the planting has been well done there is much to admire. Leaves have fallen slowly this season and showed little autumn colour, but already many shrubs with coloured bark are contrasting delightfully with evergreens near by. The ruddy red shoots of *Cornus alba*, the greenish-yellow colour of *C. stolonifera flavayana*, the bright green of *Kerria japonica*, the reddish-orange and golden barked willows, the white stems of *Rubus biflorus* and some others of more recent introduction, the reddish-orange shoots of *Ahus incanus ramulis coccineis*, the white-stemmed birches, the red-twigged limes, and the lively brown of some of the barberries, all contribute to render the arboretum a highly enjoyable resort even in the depth of winter.

Where effect is the sole object and no scientific arrangement is required, some care should be exercised in choosing positions for trees and shrubs with coloured bark. There is no doubt that a background of evergreens is useful in emphasising the colour, and so it is that in a mixed shrubbery these shrubs with coloured bark stand out more prominently than if planted in isolated positions. Waterside planting is also effective, since on clear days the reflection in the water is an additional charm. B.

The Rose Garden.

COMPARATIVELY few amateurs give much attention to the species of Roses, though many of them are of rare beauty. The reason, no doubt, is that at least some of them are somewhat aggressive and take up rather more space than is usually available in a small garden. A few, however, are well worth inclusion, particularly among those of recent introduction from China. Another drawback from the point of view of the small grower is the comparatively brief flowering period, but this is somewhat compensated for by the usually ornamental fruits which follow in autumn. Some, too, have ornamental shoots, which are hardly less pleasing than the Dogwoods. Prominent among the newer species is *R. Moyesii*, a strong grower, producing stout shoots, some of which are thickly armed with strong spines. The flowers are a fine dark red and often measure two inches or more across. They are produced on shoots of the previous year, and are followed in autumn by large, red, bottle-shaped fruits.

R. Hugonis, also from China, is equally desirable, being a welcome addition to the single yellow Roses. A strong grower, reaching 6 feet or more in height, so far as I have seen it, but with slenderer branches and more graceful habit than *R. Moyesii*. Flowers produced very early.

R. omeiensis, gathered on Mount Omi in China by several collectors, but introduced by Mr. Wilson in 1901, is a pretty Rose bearing white flowers and later bright red fruits. B.

The Month's Work.

The Flower Garden.

By CHARLES COPPEN, Gardener and Forester to Lord Cadw, Castle Boro', Clontarke, Co. Wexford.

THIS month is, for many purposes, a dull month in the garden, and opportunity will be found to do many things that are not possible in the other months of the year. After the storms of November all the drains and sand traps should be looked after and cleaned up, so that all will be in perfect order. Leaves must be cleaned off lawns and walks and from the exposed parts of shrubberies, on the edges of drives and roads. These may be added to the manure heap, and will make a welcome addition to it. If some basic slag is procurable it would be a distinct help, and the most desirable way of applying it to flower beds and borders is to spread it over leaves and manure and mix it together. After the lawns have been cleared of leaves they must be swept with birch brooms and rolled—this rolling helps them to withstand frosts, and especially on newly sown lawns of last season does this apply, as the young grass plants are easily uprooted by frosts and, if neglected, become patchy. Weeds which are deeper rooted than get the advantage of a good start next spring. On old lawns a topdressing of old soil and leaf mould mixed with ashes from a refuse fire or wood ashes have a lasting and beneficial effect. On many lawns basic slag will help to destroy the moss, and if this is followed by two dressings of equal parts sulphate of ammonia and clean sharp sand, about one pound of the mixture to every square yard, and 2 cwt. of the mixture—that is, one cwt. of sulphate of ammonia and one cwt. sand mixed together—will cover a full size tennis court and the margins. I prefer to divide this into two parts, putting half on about the middle of March and the remaining half about the 14th April. This will do away with the moss, encourage the grasses, and if you use basic slag it will also encourage clover. It will also be beneficial in reducing the weeds, and especially the daisies and plantains. If the daisies are a plague repeat the dose of sulphate of ammonia and sand in early May and again the following October.

Renovations and renewals of worn-out turf on lawns, especially narrow grass edges, can be attended to this month. Where paths are getting weedy and the surface somewhat muddy, this can be carefully scraped off and a renewal of clean sand put on; in a few favoured spots granite chippings can be procured at a cheap rate, and these make a splendid surface.

Old and worn portions of shrubberies, and where it is intended to plant flowering or other shrubs in early February, should be cleaned out and thoroughly dug—two spit deep—during this month on all available occasions, when the weather permits, to allow as long a time for the soil to settle as possible.

All climbers of the flowering shrubs on walls, and the summer and autumn flowering shrubs, wherever they be, that flower on the current season's growth should be (in most cases) pruned severely back now, and if the Clematis were not done in November they should be done at once.

Christmas Roses, *Helleborus Niger*, should be covered with glass immediately the flowers begin

to show above ground to get the blossoms as pure as possible. Those who would have these lovely flowers at will should plant them in a square patch, the exact size of a single light frame, which can be put on them during the flowering period and lifted off immediately the flowers are picked.

The rock garden must be kept clean, and a little sharp sand placed round choice subjects liable to damp. In favoured warm spots *Iris stylosa* will show some flower buds towards the end of the month, but only on dry, warm and sheltered positions.

If renovations are needed on the herbaceous border the plants can be lifted, labelled and heeled in a high and favoured spot in safety till the border is trenched and heavily manured, but these plants cannot be planted again in safety till the end of January or the beginning of February.

On dry days and whenever possible admit air to Violets in frames, to all cuttings in cold frames and to the greenhouses also; this is very important, as December is the most trying month of the year on plant life. The ventilators should be opened at the top and gradually increased as the day goes on till noon, then reduce it to half about two o'clock, and shut down at half three if the night shows signs of being cold; on the nights that are not too cold or where the outside temperature does not fall below 15°, some top air may be left on all night.

Roman Hyacinths may be kept in a warm house until the flowers are fully expanded, when a return to a cooler house is desirable for a few days before putting in a dwelling-house. Frezias coming into flower should be kept in a temperature of 55° unless the outside temperature is very low, when 50° will be more suitable. This will suit Cyclamen in flower also, which ought to make a good show of bloom at Christmas.

Begonias Gloire de Lorraine are at their best this month, and we have Gesnera Chronatilla, which is in every way equal for a brave show of bloom when well grown.

The Fruit Garden.

By T. E. TOMLIN, Gardener to the Earl of Bessborough, Bessborough Park, Co. Kilkenny.

THE fruit crop of 1916 has been rather disappointing, although some localities have been more fortunate than others in this respect. In very few orchards or gardens has the apple yield been up to the average, the better class dessert apples having been the worst defaulters. The following varieties of cooking apples have given splendid crops this season here:—Grenadier, Loddington, Lane's Prince Albert, Blenheim Orange, Branley's Seedling and Newton Wonder; while of the dessert kinds:—Allington Pippin, King of Tomkin's Co., Baumann's Red Reinette and Fearn's Pippin—all being apples of second rate quality—were fairly good. Cox's Orange Pippins were very scarce, while King of the Pippins, Ribston, and Gascoigne's Scarlet were more than usually spotted. The only two pears that gave good returns were William's and Doyenne du Comice, the latter upholding its reputation as the best October-November variety. Among plums Victoria, Diamond, and Czar cooking, and Oullin's Golden Gage, Jefferson, Early Transparent and Coe's Golden Drop—dessert, gave the best yields. Of the small fruits, the currants

were the best, especially the red and white varieties, which gave very heavy crops. Strawberries promised well, but were completely spoiled by continuous wet weather during the ripening season, whilst the sudden spell of hot, dry weather at the end of July, quickly brought the raspberry season to a close. Loganberries, as usual, gave profitable crops, and outdoor figs were plentiful, the fruits being of good size and excellent flavour.

PRUNING.—Nearly all kinds of fruit trees may be pruned now, one of the exceptions being the fig, which should not be pruned until March. Standard and bush trees of apple and pear that were summer pruned in July and August should now be gone over again, cutting back all side growths to two or three eyes. Where spurs have formed too thickly they may be thinned out, leaving those on the outside of the branches where the fruit will obtain the maximum of air and sunshine. The variety Allington Pippin requires a good deal of spur-thinning, and it should be remembered that fruit borne on spurs in the centre of the tree where sunlight and air cannot penetrate are useless, besides being a drain on the resources of the tree. The leading shoot should be shortened to about a third of its original length, making the cut just above a bud pointing in the direction in which next year's shoot should extend. Varieties inclined to grow in a pendant manner, of which Lane's Prince Albert is an example, should be pruned to a bud pointing upwards, so as to correct this drooping tendency. Standard trees, the pruning of which may have been neglected, should have the branches well thinned out to about two feet apart, removing all crossing branches, and those growing inwards towards the centre of the tree. Single cordon trees on wall or fence should have their side growths cut hard back to two eyes, and the leading shoot shortened to six or eight inches. Do not be tempted to leave this leader too long, with the idea of covering the allotted space quickly, because if this is done the lower half will fail to break into growth next season, and will thus leave an unprofitable length of bare stem devoid of fruit spurs for ever. Fan-shaped and espalier trees should be pruned with a view of forming each branch into a perfect single cordon, therefore the foregoing remarks should be borne in mind when pruning these. After pruning secure each branch in its correct position, and in making the ties allow for the swelling of the branch next season. Neglect of this precaution is often responsible for the loss of an important branch thereby destroying the symmetry of the tree.

BUSH FRUITS.—Red and white currants fruit best on spurs, and these should be encouraged to form by cutting hard back all side growths, leaving the leading shoot five or six inches in length. Black currants fruit on young wood of the previous season's growth, and require less pruning, all that is necessary being a judicious thinning of the branches and the removal of some of the older growths. Gooseberries fruit both on spurs and on young wood. Therefore a few of the best of last season's shoots may be left almost their entire length, a few of the older branches being cut out to make room for them, and those remaining treated in the same way as with red

and white currants—*i.e.*, by spurring back all side shoots and shortening the leading shoot to about six inches.

GENERAL REMARKS. All prunings should be gathered up and burnt as soon as possible, and on frosty mornings manure may be wheeled on to the fruit quarters in readiness for digging in, after pruning and spraying is finished. Any planting left over from November should be hurried on at every favourable opportunity, as trees planted before the New Year are much better able to resist drought during the ensuing summer than are those planted in the spring.

The Vegetable Garden.

By J. B. POW, Gardener to Lord Dunsany,
Dunsany Castle, Co. Meath.

CROPS IN FRAMES.—Give plenty of ventilation to vegetables growing in frames, remove the lights during the day when the weather is mild and dry. A little air should be left on the top of the frames at night to keep the atmosphere dry. Keep the soil free from weeds, and stir between the plants occasionally. Endive may be blanched by placing mats over the glass to exclude the light. This method will give better results than removing the plants to a dark, warm pit.

THE FORCING PIT.—Place rhubarb and seakale in the forcing pit at intervals to suit the requirements of the consumer. Chicory may be forced in a somewhat similar manner as that of seakale, but requires less moisture to grow it to perfection. If too much water is used the plants will damp off badly. Mustard and cress may be sown every ten days.

REMARKS.—Examine onions in store and remove decaying bulbs. Winter broccoli and savoys should be protected by placing their heads facing north or west. Take a trench out at whatever point suits, and push the plant over with the back of a spade. Savoys will keep in good condition longer if treated in this manner, as the leaves will protect the open heads from frost. Burn prunings and other garden refuse of a woody nature, store the ashes where they can be kept dry to be used as a fertilizer.

VACANT GROUND.—Much ground will now be vacant in the kitchen garden, and no time should be lost during favourable weather in getting the ground cultivated for next season's crops. Time may not permit trenching, but for the benefit of deep-rooting crops, part of the garden should be trenched every year. Trench in all the stems and leaves of the brassica family that have ceased to be useful before starting digging. In manuring, much depends on the nature of the soil. It is advisable where the ground has been manured year after year with farmyard manure to give an application of lime to the soil. One half bushel of slaked lime to the square rod will be found sufficient, a little more if the ground be very heavy. Where farmyard manure is scarce, a dressing of basic slag may be given at the rate of from eight to ten pounds to the square rod in early winter, and a good application of ashes from the refuse fire in spring; as a crop producer this will be found a good substitute for farmyard manure. Lime and basic slag should be applied to the soil in late autumn or early winter.

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THE annual general meeting was held at the offices, 5 Molesworth Street, Dublin, on the 16th ult., an unusually good attendance of members being present. The chair being taken at 4 p.m. by Lord Frederick FitzGerald, and the preliminary business having been transacted, Sir Frederick W. Moore (Hon. Secretary) read the 86th Annual Report, which, with the statement of accounts for the year ending December 1st, 1915, was moved for adoption by Canon Kingsmill Moore, D.D., and seconded by Mr. D. MacLeod. Both mover and seconder spoke in able terms of the work of the society, especially referring to the work which had been done, and was being done, for our sailors in supplying them with fresh fruit and vegetables, by the Irish Branch of the Vegetable Produce Committee, under the auspices of the society. The report and accounts were unanimously adopted. On the motion of Lady Moore seconded, by Lady Albrada Bourke, of the eight retiring members of the Council the following were duly re-elected, viz.:—Sir Frederick W. Moore (Hon. Secretary); G. M. Ross, M.A.; H. P. Goodbody, Robert Anderson, and W. F. Gunn, J.P. Messrs. A. V. Montgomery, H. Bill, and R. G. Martin (practically) being elected to fill the vacancies. Mr. A. V. Montgomery being moved to the second chair. Mr. James Robertson, J.P., proposed a cordial vote of thanks to the chairman for his courtesy in presiding, which, seconded by Mr. E. O'Brien, was passed with acclamation.

TO THE EDITOR OF THE IRISH GARDENER.

DEAR SIR:—I should like to endorse every word of Mr. B's letter regarding *Michauxia Dubia*, *Ulmus*. It is a noble plant, and forms one of the striking features in the garden in autumn. It is certainly the finest *Aster* I have grown, and it increases rapidly. Its quality of flower, which in September continues well into October, when most herbaceous plants are past their best, further enhances its value. The great length of its stem, which the side clusters of flowers adorn, renders it most amenable to arrangement in vases, and the length of time that this flower will keep fresh when cut is quite remarkable. Its season of life will last a fortnight. To get the best results from this, and others of its class, the plants should be well thinned out in spring, and should be staked out separately. This method promotes the development of side growths and gives to the whole length of the stem a fine, bushy growth.

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the following is a list of the principal markets for the week ending 10th inst. The following is a list of the principal markets for the week ending 10th inst.

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The following is a list of the principal markets for the week ending 10th inst. The following is a list of the principal markets for the week ending 10th inst.

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The following is a list of the principal markets for the week ending 10th inst. The following is a list of the principal markets for the week ending 10th inst.

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The following is a list of the principal markets for the month:—

From		To	
From	To	From	To
2	9	2	9
1	6	1	6
23	6	28	6
1	6	2	6
1	0	1	6
0	8	0	10

From		To	
From	To	From	To
10	6	30	6
8	6	17	6

From		To	
From	To	From	To
2	6	1	6
1	3	1	9
2	3	3	0
0	8	1	0
1	3	1	9
6	0	18	6
3	0	1	0
1	0	1	9
0	3	0	5
3	0	1	3
0	8	1	1
0	11	1	2
0	8	0	10
0	3	0	7
2	6	1	0

From		To	
From	To	From	To
3	0	1	6
1	3	5	0
3	0	7	6
6	0	7	6
1	0	8	6
1	0	1	3
1	0	1	6

From		To	
From	To	From	To
2	8	1	0
1	0	7	6
1	0	6	6

From		To	
From	To	From	To
0	9	1	3
0	9	1	0
1	3	1	6
0	8	1	0
3	0	1	6

J. J. C.

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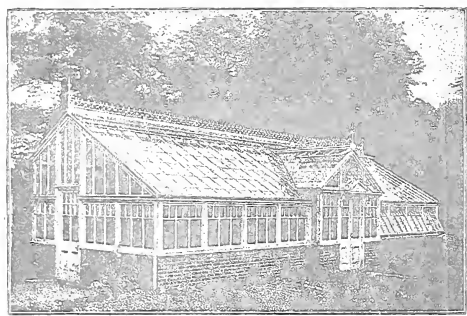
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DARLINGTON

(LONDON OFFICE: Belgravia Chambers, Victoria St., S.W.)

Royal Horticultural Society of Ireland.

THE usual monthly meeting of the Council was held at the Society's offices, 5 Molesworth Street, Dublin, on the 11th ult., Mr. E. H. Walpole presiding. Sir Frederick Moore (Hon. Sec.) read a letter he had received from Lady Ardilaun kindly promising to renew the Dahlia Challenge Cup, presented by the late Lord Ardilaun, and which was won out last year by W. Ross, Esq., Dalkey; also intimating she would continue the late president's cash prizes, the best thanks of the Council being voted to Lady Ardilaun for her generous support. The schedule for the autumn show, August 22nd, was discussed, amended, and adopted, and it was resolved that a silver medal be granted annually to the Irish Gardeners' Association, to be at the disposal of the committee for awarding in such ways as the committee may arrange for competition among the Irish gardeners at their own meetings. Lady O'Brien, Ardona, Dundrum, was elected a member of the Society,

are divided into—(a) Cottagers and Artizans; (b) Amateurs; (c) Amateurs employing professional gardeners; and, finally, Special Classes which are open to all. Many valuable prizes are offered, including silver cups, medals, shields, and handsome money prizes. We offer our congratulations to the Secretary and Committee, and wish them fine weather and great success under the happiest conditions on August 1st. Intending competitors should note that entries close on July 25th.

Catalogues.

No name is more closely connected with Begonias than that of Blackmore & Langdon, Twerton Hill, Bath. They have made a special line of Begonias since the firm was first initiated, and they have achieved success. Their new 1916 Catalogue is now to hand with many of the firm's productions and exhibits freely illustrated. Four very fine coloured plates are included, three of Begonias and one of Delphiniums, in which the firm also specialises. A very fine selection of named Begonias is offered at prices varying from a shilling upwards, while for the amateur of limited means, collections of mixed singles are offered at much cheaper rates. Other features of the catalogue are Perpetual Flower Carnations, Border Carnations, Cyclamens, Polyanthus, &c.

County Clare Horticultural Society.

AN Exhibition of Fruit, Flowers and Vegetables will be held in Ennis on Tuesday, August 1st, and the schedule of prizes is now before us. This is one of the most enterprising and successful Societies in Ireland, and we note that the schedule contains no less than 134 classes all told. These

SWEET PEAS

Edmondson's Eblana Collections of the 25 Best New
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25 VARIETIES, 25 SEEDS EACH, FOR 1 6
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EBLANA MIXTURE.—1 quart, 6/-; 1 pint, 3 3; $\frac{1}{2}$ pint, 1 9; per oz., 4d.
GIANT FLOWERED MIXTURE—per lb., 7 6; $\frac{1}{2}$ lb., 4 -; per oz., 8d.
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10 DAME STREET ————— DUBLIN

The Croydon Vacant Lands Cultivation Society.

By Miss E. L. HUNTER, Hon. Sec. of the Society.
From the *Journal of the Royal Horticultural Society*,
January, 1916.

The Croydon Vacant Lands Cultivation Society was formed in 1915, and its object is to secure the cultivation of the vacant lands in Croydon, Surrey, which are now in the hands of the Crown.

Before the war the Croydon Guild of Help made a scheme for the cultivation of a vacant land, but owing to insufficient support the scheme fell through. The subject was revived at the outbreak of war by an offer made by a well-known Croydon landowner to let his vacant plots for cultivation free of rent to any cultivators. This landowner also promised to compensate cultivators for loss of crops should he decide to take over his land again at short notice. Although the soil was only fair, and the land in some parts extremely rough, about twenty applications were received. The fifteen members of the original committee then called together, persons likely to be interested in the scheme, and a meeting was held on 23rd September, 1914, at which the Committee of the new Society was elected. It included, among others, two well-known landowners, a solicitor and four representatives of the chief local horticultural society. Another landowner offered his vacant land, and others were approached by members of the Committee, with the result that the Society had in December, 1915, control of about 20 acres, lent by 22 different owners, and lent in small plots of 12 rods or less to over 200 cultivators.

Croydon.—Croydon is a town of 181,000 inhabitants, ten miles from the centre of London, residential and suburban in character, but there is also a very large wage-earning population. Its area is fourteen square miles. The building trade has been declining for some years, and there are many unoccupied houses.

Rules and Regulations.—The Committee formerly constituted itself, appointed the usual officers and framed rules, similar to those of other Vacant Land Cultivation Societies in London, Dublin and Birmingham, but differing in one important particular, namely, that the Croydon plot-holders became full members, paying a minimum subscription of £s. a year, ear-marked for the compensation fund. The importance of

the Committee's work was fully appreciated by the public, and only lent to the Society for the purpose of the scheme. The Acts governing the Society would not exempt it of liability for compensation.


It is worth pointing out, by the way, that the men engaged in the cultivation of vacant land from the first, and who are entitled to the plot-holder's share of the produce. Besides the usual rules for allotment holders, providing that the plot-holder is required to the satisfaction of the Committee, the Society has to sign an undertaking to the plot-holder on demand. The plot-holder is allowed over a 6d. stamp, and the plot-holder, so that in case of any dispute, the plot-holder's value.

Thanks to the Society.—By the courtesy of several estate owners in providing the names and addresses of the owners of vacant plots, and by diligent local inquiries, the Society was able to send out a large number of appeals for vacant land, to many of which of course no answer was received. Friendly ladies were, however, received from private owners and three land companies, as well as from the Trustees of the Whitgift Foundation and the Croydon Corporation. The latter, with their usual public spirit, have permitted access, afforded privileges in the use of water, and helped the Society in various other ways.

An agreement is signed by the landowners and the Committee, acting through one member appointed as their agent, so that in the event of any trouble with tenants the Committee personally are responsible. In most of the agreements the Committee undertake to vacate the land after four days' written notice.

Garden Committee.—To carry out the work of the Society effectively it was found necessary to form a Garden Sub-Committee to undertake such external work as inspecting the land offered, marking it out, letting it to applicants, superintending the plots, advising on the cultivation of crops, and other details. The members of the Sub-Committee are exceptionally fortunate in their chairman, a practical gardener, who has thrown himself wholeheartedly into the work, and given much sympathetic and valuable advice to the plot-holders.

The Committee originally made their existence



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known by placing temporary notices on the vacant plots, but this soon became unnecessary, for numerous applications were received, till at the end of December, 1915, there was a waiting list of 150 names.

The plots lent vary in size according to the nature of the land, but are usually of about 10 rods. Sub-letting is strictly forbidden, and if it occurs each tenant is made to sign the agreement direct with the Committee, and pay the full subscription, though only retaining part of the plot. The land cultivated consists mainly of building plots, but in three cases the gardens of houses have been used.

Fencing.—The question of fencing proved a difficulty, and was met by a decision of the Committee that all improvements such as fencing, laying on water, &c., must be effected by the plot-holders themselves working co-operatively.

Yield of Plots.—The following quotation is from one of the monthly reports (September, 1915) of the Garden Committee: "The plots are receiving good cultivation in each instance. Where the tenancy began last autumn, the cultivator is now getting good returns for his labour. Some excellent early crops have been gathered, and the ground, after being properly treated, has been replanted. Other grounds let at a later date have been well trenched, and are mostly cropped with vegetables which will yield produce in the coming winter and early spring. Neatness and tidy appearance are found on each plot, and it is a pleasure to walk round these grounds and observe the welcome change made in a few months from a barren wilderness to a productive piece of land."

The following are particulars of crops either wholly or partly gathered at the end of 1915 on

a plot of 9 rods, part of a building site lying idle for several years, which has only been under cultivation since the end of April last:—

<i>Crops gathered.</i>		£	s.	d.
6½ bush. potatoes, at 3s. per bush.		0	19	6
10 " " " " 2s. 6d. "		1	5	0
15 lb. runner beans, at 1d. per lb.		0	3	9
2½ doz. lettuces, at 1s. per doz.		0	2	6
1 bush. turnips		0	1	0
1 doz. vegetable marrows, at 1s. per doz.		0	1	0

Crops partly gathered and partly remaining on ground.

3 rows (10 plants each row) leeks, at 6 stems for 2d.	0	3	1
31 rows (26 plants in each row) greens, including Brussels sprouts, broccoli (heading and sprouting), cauliflowers, cabbages, kales, savoy, totalling 881 plants at 1d.	3	13	8

Total . . . £6 12 9

Expenditure.

Seeds and plants . . .	11	0
Manure	2	6
	0	13 6

Estimated total profit on 9 rods of ground, May, 1915, to March, 1916 £5 19 3

Rather than overestimate the returns the value of each crop is placed at a nominal figure. The estimated profit includes return for labour.

On 5 rods of land, so poor that it was almost refused, a plot-holder produced an excellent crop of 5½ cwt. of potatoes.

(To be continued).

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PLANTS MUST BE FED

The two main elements of success in gardening are proper
Irrigation and intelligent Fertilizing

Always follow up your Autumn and Winter manuring with
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It is easily applied, quick in its action and a necessary
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Produces a Rich, Green, Velvety Turf, and is composed of the finest dwarf evergreen grasses. PRICE
1 3 per lb. : 14 6 per stone

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10-inch, 32 6 : 12-inch,
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OUR DUTY.

Owing to the fact that our works have been given over to the requirements of H. M. Government, we are obliged to discontinue making, with further notice, our well-known Glasshouses, Conservatories, and Horticultural Buildings. We have, however, certain stock, which is offered to make room for additional machinery & being offered at pre-war prices in order to clear.

For particulars apply by post or on Application.

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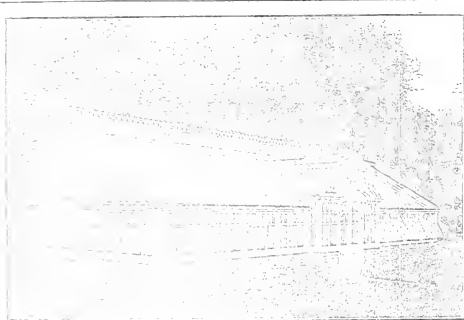
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DARLINGTON

(LONDON OFFICE: Belgravia Chambers, Victoria St., S.W.)

Royal Horticultural Society of Ireland.

THE monthly meeting of the council was held at the offices, 5 Molesworth Street, Dublin, on the 10th ult., when judges were nominated for the spring show, to be held in conjunction with the Royal Dublin Society's spring show at Ballsbridge, 26th and 27th inst.

In response to an application from the Marquis of Headfort, president, for help in the way of seeds for the soldiers at the British base, in France, it was resolved that the matter be brought before the Dublin Seed and Nursery Association with a view to possible aid to the object. Sir Frederick Moore reported that the accounts of the Irish Branch of the Vegetable Products Committee had been audited by Messrs. Craig, Gardiner & Co., and that a year's work for our sailors having been completed, suggested that a general meeting of the vice-presidents, committee, subscribers, and supporters, be held at an early date, which was subsequently fixed for Monday, April 3rd.

Mr. F. Streeter, Straffan Gardens, Co. Kildare, and Mr. G. Fitch, Kenure Park Gardens, Rush, Co. Dublin, were elected practical members of the society.

Weed Worries.

From now on garden and park walks, lawns, &c., will be producing their spring crop of weeds, and the unfortunate aspect of the matter is that all available labour is required for other work than scuffling these walks. However, science has come to the rescue, and has given us weed-killing preparations, which reduce to a minimum the labour necessary to destroy the weeds. There is no doubt that of these preparations Smith's "Perfect" Weed-Killer (Liquid and Powder) holds a premier place, and the Irish Agent, D. M. Watson, 61 South Great George's Street, Dublin finds the demand still increasing. This is mainly the result of satisfied users recommending Smith's Weed-Killer to their friends. Another thing which has stood to Smith's Weed-Killer is the fact that the solution is a much stronger one than many on the market, and that even when the prices of the ingredients advanced considerably (as they did a year or two ago), the full original strength has always been maintained. Prices, &c., are given on page x of this issue, and it should be remembered that Mr. Watson also makes a specialty of all kinds of Insecticides, Fungicides, Vaporising Compounds, Fertilizers, &c. In fact he has a fair claim to be considered the only specialist in Ireland in Horticultural Chemicals.

SWEET PEAS

Edmondson's Eblana Collections of the 25 Best New
Giant Flowered Sorts.

25 VARIETIES, 25 SEEDS EACH, FOR 1 6
25 DO. 50 DO. FOR 2 6

The "MINOR EBLANA" Collection. 12 Choice Sorts, 1 -
EBLANA MIXTURE.—1 quart, 6/-; 1 pint, 3 3; $\frac{1}{2}$ pint, 1 9; per oz., 4d.
GIANT FLOWERED MIXTURE—per lb., 7 6; $\frac{1}{2}$ lb., 4 -; per oz., 8d.
"SPENCER" MIXTURE—per $\frac{1}{2}$ lb., 5 -; per oz., 1 6.

EDMONDSON BROS.

SEEDSMEN

10 DAME STREET ——— DUBLIN

Catalogues.

MESSRS. LITTLE & BALLANTINE, Carlisle, send their Catalogue of Farm Seeds for 1916, and their numerous customers will find it as useful as ever. There is a fine selection of all kinds of farm seeds and many illustrations of crops from their well-known strains. Customers are urged to order early, as owing to shortage of labour there may be some difficulty in handling orders as rapidly as usual, and the railways, owing to present circumstances, are liable to congestion.

THE JOURNAL OF THE BOARD OF AGRICULTURE, February issue. "This is an interesting and useful number containing numerous valuable notes and articles. Among others of interest to horticulturists may be mentioned Willow-growing and Basket-making as rural industries; a New Fungicide for use against American Gooseberry Mildew; Notes on Lime Washes, Seed Potatoes; Notes on Fertilizers, &c.

Flower Show Fixtures.

County Clare Horticultural Society Spring Show, 26th April. Summer Show, 1st August.

The Gardens of the Poor *

ALL readers of IRISH GARDENING, whether they dwell in the country or the town, who are interested in cottage and allotment gardens, would do well to read this pamphlet. Copies can be obtained on application to the Agricultural College, Blythwood Square, Glasgow. Though written presumably for Scotland and Scottish needs it seems to us to fit Irish conditions like a glove, and, being crammed full of knowledge, appears most opportunistly at a time when we are all seeking how we can increase the output of food. After a few introductory remarks, the writer deals

* Bulletin No. 72. The West of Scotland Agricultural College. "Food Production in Cottages and Allotment Gardens." By A. Hosking, Superintendent, Horticultural Department.

with cottage gardens, allotment gardens, and vacant spaces in the towns of Scotland; cottage gardens seem to be more common in the small side streets than in the suburbs, rather the other way. The allotment gardens, so numerous now throughout the country, as a rule have rather small plots, and the grower can cultivate with the space under him in exceptionally industrious. If part of it is kept under good grass to pasture a goat this is certainly, so to speak, a blessing in disguise. A good deal can be done much for thistles (first mow in June), and a groundsel and chickweed. The allotment and cottage gardens and vacant building plots should appeal forcibly to all, even landless, owners of land, building contractors (especially those who may be trying to introduce that picturesque American custom of land speculation upon these islands), to all government officials and agents connected with the land in any way, to the various army in Dublin), the Land and Estate Commissions, the Congested Districts Board, Department of Agriculture, Valuation Office, Board of Works, not to mention Plunkett House. For many years Miss S. C. Harrison has been working away in the face of ignorance and opposition at the cultivation of vacant building plots, and rather charitable lines, but, however, she has started allotment gardens on economic lines, and by the time this pamphlet is in print she hopes to have a garden in building order at Inchicore, as well as the existing gardens behind Cork Street, Dublin, and at Strandbrook, Blackrock, Dublin. She has also obtained a grant of £800 from the Development Commissioners to organise allotment gardens throughout the towns of Ireland. She hopes to employ an expert horticultural instructor and organizer and to open an office in Dublin for information on the subject. The rest of Mr. Hosking's pamphlet treats of the actual cultivation and production of crops and the working of the gardens. He sets forth in generous fashion, and with all the charm of "simplicity arrayed," the fruits of a rich experience. His information is clear, concise and thorough. With diffidence we suggest that he should have brought out a little more clearly the relative importance of hoeing and watering. To show the wide field he covers his pamphlet deals with the cultivation of the soil, pathways, manuring garden plots, tillage and other operations, seed sowing, the



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Write for our booklet containing useful hints on Vine Growing, &c.

PRICES—VINE PLANT AND VEGETABLE MANURE—1 cwt., 20/-; 1/2 cwt., 11/-; 3/4 cwt., 6/-; 1 lb., 3/-; 7 lbs., 2/-; 14 lbs., 1/-, and 28 lbs., 1/- each. Carriage paid on 1 cwt. to any station in United Kingdom. SPECIAL TOP-DRESSING MANURE—1 cwt., 20/-; 1/2 cwt., 11/-; 3/4 cwt., 6/-; 1 lb., 3/-; 7 lbs., 2/-; 14 lbs., 1/-; 28 lbs., 1/- each. Carriage paid on 1 cwt. to any station in United Kingdom.

Sold by all SEEDSMEN and FERTILISERS or from Sole makers:

WM. THOMSON & SONS, Ltd., CLOVENFORDS, N.B.

addition to birds, the cultivation of vegetables and hardy plants, and of permanent pastures and gardens, plant diseases, and by young and last, and we are glad to see that we have so sensible such wishes for the most beneficial forms.

When I lately visited the five women who were on the ground, I found that the domestic duties that were with them were not at all Biddy work. They were, in fact, doing a great deal of work in the garden, and I found that the women to have under their hands, and stop their busy hands, and were not at all in the piano practices of "The School of the Art." We find that school gardening and housework are the subjects that would be of considerable educational value in our national schools. The fact is, all these girls and boys, if it is true, blessed with the joys of true education, and incidentally find their manners and forms, all being in light the fact that whoever gets upon a farm in his garden is a public enemy, and that whoever cultivates his plants with his own hands is a public enemy of a hundredfold, so that out of his own abundance, however slender his store, he can spare something for the good of all. For these reasons we recommend Mr. Heston's pamphlet most cordially to all thoughtful people. Whoever reads it will enjoy it.

Training of Women for Farm Work.

THE DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION have made arrangements for a short special course of training in farm work for young women who

desire to collect themselves for work on farms as substitutes for men who have joined the Army for War service. This course will be given at the Munster Institute, Cork, and will be distinct from the courses of training regularly provided there.

The course will be sufficient to render a suitable young woman useful on a farm. It will also suffice to enable those who may be doubtful as to their suitability for farm work to test their capabilities before actually entering upon it.

For particulars apply to: The Secretary, Department of Agriculture & Technical Instruction for Ireland, Upper Merrion Street, Dublin.

Dublin Wholesale Markets.

SINCE last report the supply of fruit and vegetables was not up to the usual standard, owing presumably to the incessant rain during the month.

VEGETABLES. Cabbages (Yorks) were in great demand, and as the supply was short, prices were high. Savoys, owing to scarcity, aroused keen inquiry; one fancy load at Messrs. Lightfoot's stand brought the extraordinary price of 88s. Cauliflowers were well supplied, and met with a brisk and ready demand. The supply of celery is diminishing, consequently prices are increasing. Cucumbers arrived in large quantities, and were eagerly sought after. Parsley, parsnips, and Brussels sprouts were supplied only in very small quantities. Swedes have increased greatly in price since last report. Supplies of mushrooms and sea-kale are limited, but rhubarb and thyme

IPSWICH SEEDS AT THE FRONT

In position they have attained by years of careful selection. The best edition of catalogue of CHOICE SEEDS enumerates nearly 2,000 distinct varieties of FLOWER SEEDS, including many NOVELTIES and RARITIES, also a list of RELIABLE VEGETABLE SEEDS. All BEST QUALITY at strictly MODERATE PRICES. HARDY PLANTS, up-to-date collection, in excellent condition. ROSES, all classes, 121 beautiful Ramblers, 5 x Carriage Bells. FRUIT TREES, large collection fruiting trees from 7 x 8 inch Catalogues on application, stating requirements.

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LIQUID—Concentrated Strength
(1 to 80)

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Barrow-on-Humber :: HULL

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Carriage Pair at the end of the line to Stations in Ireland.

EMERSON'S LIQUID WEED KILLER

Carrriage Paid on 3 gallons and upwards.

* And on when mixed with a gravel area of about 400 square yards.

Double Strength (4 to 50)				PRICES -	
1 gallon	4	0	5 gallons	16	0
2 gallons	7	6	"	18	0
"	10	0	"	24	0
"	12	0	"		
			10 gallons		29 0
			"	20	52 6
			"	40	102 6

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Insecticides, Fungicides, Herbicides, Spraying Machines, &c.

Vegetables

IN ONE WEEK

...of the ... effect ... which ... side ... and ...

Soda

... the ... results are ... in its ...

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... FLOWER ...

... Now

... all ... 12 plants in 3" pots, 12/- ... 50/- per 100 ...

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0	1	1
1	0	1
1	1	0

2	10	—	15
2	11	1	11
2	12	2	23

$$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$$

1. *Journal of the American Medical Association*, 1990; 263: 1033-1036.

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Greener Lawns, Finer Flowers, more forward Vegetables IN ONE WEEK!

After only one week you can see the effect on Lawns, Flowers and Vegetables which have been Fertilized with Nitrate of Soda, an inexpensive chemical, for sale everywhere. Ordinary Farmyard Manure requires to lie in the soil months and months before it begins to feed plants.

Nitrate of Soda

Begins to be absorbed and assimilated by Plants immediately. The results are visible in one week. Nitrate of Soda, besides being very quick in its action, is cheap, but must be used judiciously.

See Pamphlet "Chemical Fertilizers in the Garden," supplied gratis and post free by

THE CRISP, NITRATE COMMITTEE, Friars House, New Broad St., London, E.C.
AND 18 DONEGALL QUAY, BELFAST.

The Performance of "ACME"

POWDER WEED KILLER

Smoothes and Dest

For Costly Lawns, Roads, Moss, &c., on Garden Walks, Drives, Roads, &c.

FOR ALL HOUSEHOLD USES, SOCIETY'S GARDENS AND CRISPAL PALACE AND

POWDER WEED KILLER

Dissolves quickly in cold water

1 lb. in 100 gal. of water. 2 lb. in 200 gal. of water. 3 lb. in 300 gal. of water. 4 lb. in 400 gal. of water. 5 lb. in 500 gal. of water. 6 lb. in 600 gal. of water. 7 lb. in 700 gal. of water. 8 lb. in 800 gal. of water. 9 lb. in 900 gal. of water. 10 lb. in 1000 gal. of water.

LIQUID WEED KILLER.

Strength in 50. Prices on application.

Liquid Weed Killer. Strength 1 to 25 of Water. 1 gall. 2 5 (tin 4d.). 5 galls. 3 4 (drum, 2 9); 10 galls. 16 -; (drum, 5 -); carriage paid. Drums allowed when returned.

"ACME" LAWN SAND.

Marvelous killing effect on daisies, moss, and other weeds in lawns. Fertilizes the grass. No other manure needed. 7 lbs., 1 9; 14 lbs., 3 -; 28 lbs., 5 8; 56 lbs., 10 -. Carriage paid on 56 lbs.

Send for Price List of Garden Chemicals.

ACME CHEMICAL Co., Ltd.
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SOLE AGENTS: HAYES, GORINGHAM, and H. & J. B. 12 GORINGHAM

WEEDITE DEATH TO WEEDS

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No trouble. Simply dust it on.

Sample Sprinkler Tin, 6d.
Best 1 lb. or 2 1/2 lbs. to dress
250 square yards, 5s. car. pd.

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The 'PARAGON'
(PATENT)

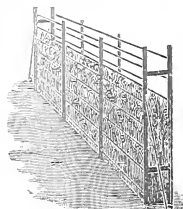
SINCE their introduction some few years ago these Trainers have been steadily gaining in public favour. A real boon to Gardeners. Simple, efficient and durable. Saving couple support and keeping the growing peas on neat straight lines. Do not harbor weeds. 1. 10 ft. and 6 ft. high, and sent out in sets complete ready for putting up, at 18 in 8 6 per set forward. Write for price list.

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"I am delighted with your Pea Trainers. Please send me another set."—DE SMET.
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COOPER'S NICOTINE (V2) SUMMER FLUID FOR SUMMER SPRAYING

A Nicotine Preparation for Apple-Sucker, Green-Fly, &c., on FRUIT and other TREES.

Qt. 3.6: 1 Gall. 10.6; 2 Galls. 20.6; 5 Galls. 50.0;
40 Galls. 219.10.

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For ROSE, STRAWBERRY and other MILDEWS

Per Qt. 3.0; 1 Gall. 9.0; 2 Galls. 17.5; 5 Galls. 42.6

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FOR THE DESTRUCTION OF THE COILING MOTH
AND LEAF-EATING CATERPILLARS.

Mixes well, adheres well, remains a long time in suspension, coats foliage uniformly, and does not scorch when properly prepared.

1 lb. Tin 13; 5 lb. Tin 55; 10 lb. Tin 92; 50 lb. Keg 366

COOPER'S WEEDICIDE

After trial—Received the "Commended" award
of the Royal Horticultural Society.

Kills Weeds on Garden Paths and Gravelled Spaces.
Per Qt. 2.0; 1 Gall. 6.6; 5 Galls. 27.6; 40 Galls. 160.0
1 gall. makes 100 galls. of effective Weedkiller

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FOR PREVENTION AND ERADICATION OF
DISEASES AFFECTING TOMATOES

Qt. Tin 2.3; 1 Gall. 6.0; 5 Galls. 25.0; 10 Galls. 22.11

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A re-inforced NICOTINE PREPARATION for
Destroying INSECT PESTS in Glass-houses.

1a Botts. 1/2 Bd.: 12; 26; 50; 90; In Tins of 1/2: 30; 57.

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List of Clearance Lines may be had on Application.

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BERONIAS SEED 2 6 and 5 - per packet

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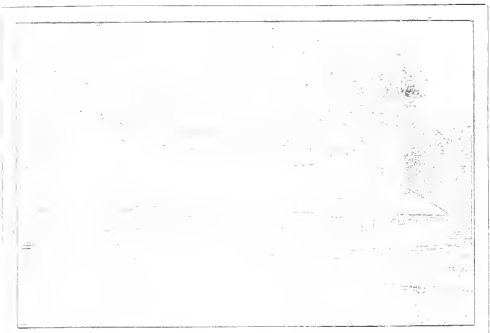
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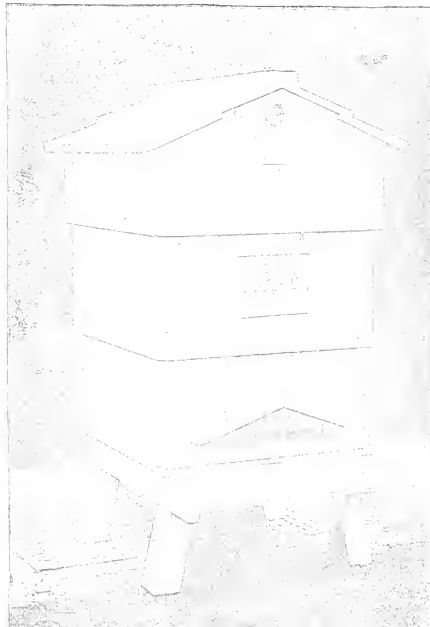
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Catalogues.

Summer Horticultural Society. Now is the time to plant if a display of flowers is during summer and autumn season. In 1899 the floral catalogues we find in the papers show the variety of people still look on the "back side" of things in general. Nothing is so difficult than to be satisfied and to be contented. It is a liability, necessary thing for a gardener to be produced as possible the same weather where the proper cultivation of a garden and things common be carried out. In such positions, in fact, the summer flowering plants, which are of a temporary nature, may be planted in the garden to bring in and cheer the gardeners and the soil. Messrs. W. & A. of the Central Nurseries have opportunely issued their list of annuals and other plants for present planting. The Society is as complete as usual, and comprises all the most useful plants for present planting.

The Hunter Pringle Challenge Cup.

The Terenure and Districts Horticultural Society have decided not to hold a show this summer, but this does not mean that they will not be active in the interests of horticulture, for which they have done so much. They will adjudicate for the Hunter Pringle Challenge Cup, presented to the Society in February of last year by R. Hunter Pringle, Esq., of Bonyale, Orwell Park, Rathgar.

The donor's object is "to stimulate a healthy and friendly rivalry among those who, having gardens of limited size, may, by devoting greater personal attention to their care, add very greatly to the beauty of their surroundings and the pleasure of their leisure hours."

The competition is limited to residents within a five mile radius of Terenure Post Office and who employ a qualified gardener not more than one day per week from 1st May to 1st October. The desire, therefore, is to encourage personal endeavour, and so bring the maximum amount of enjoyment to the owner.

The competition will obviously bring in a large number of suburban and villa gardens whose difficulties and successes have frequently been commented on in IRISH GARDENING. The usual suburban garden, small in extent and consisting of a plot in front and a strip to the rear, is usually composed of soil of the worst possible description, and requires considerable labour at first to get it

into condition. But to give the work is light and well suited to the ability of a business man with only a little extra time and energy to devote to it.

The object is to find out what the Society is to do, and to find out what the gardeners in making the city gardeners have endeavored to encourage them to do, and to find out what the difficulties and subsequently to find out what is in a high state of fertility.

This competition is probably unique in Ireland and possibly in the world. We commend its object to the attention of suburban and villa gardeners, and to those who in Ireland, and will be glad if in the future days will make use of the pages of IRISH GARDENING to make known these difficulties, and to those who have succeeded may help and assist.

For a list of a sufficient number of competitors to be entered in 1899, presented by Mrs. Jackson, and a list of 1898, by the Society, will be prepared. The prizes may be had from the Society, 10, Rathgar Terrace, Rathgar.

Irish Show Fixtures for 1916.

- August 1st. Co. Clare Horticultural Society's Summer Show, Ennis. Hon. Sec., Rev. R. Scott, The Manor, Ennis.
- 2nd. Kingstown Horticultural Society. Hon. Sec., R. Macdonald, Esq., M.A.
- 4th. 10th. Galway Horticultural Show, Ballinasloe. Hon. Sec., Miss O'Shaughnessy, Birch Grove, Ballinasloe.
- 22nd. R.I.S.I. Autumn Show, Lord Iveagh's Grounds, Dublin.

Dublin Wholesale Markets.

During the month of April the markets were closed for a fortnight, owing to the recent lamentable disturbances. Fortunately, on account of the Easter vacation, very small supplies of produce, either home or cross-channel, were available.

VEGETABLES. Cabbages still continue to be scarce, and consequently dear. Cauliflowers were abundantly supplied; despite this they received particular attention and commanded high prices. Only very small lots of old carrots sold; none of the season's crop have yet arrived. Lettuce was in great demand, supply being equal to demand. Parsnips are almost over. Parsley was eagerly sought after, high prices were obtained for same.



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PLANT SPRAY

a very effective where it is not convenient to fumigate. We advise you to try it. It will also be useful as a Winter dressing for Potatoes, &c.
1 pint 12; pint 2; quart 3/6; 1 gallon 10/-
Carriage Paid. Ask your Seedsman for it.

LAWN SAND

entirely eradicates Dandelions, Weeds, Moss, &c., besides stimulating the Grass.
25 lbs. will dress 100 sq. yds. 8d., 1s., and 2s. 6d. Tins:
1 cwt., 8s.; 1/2 cwt., 4s.; 1/4 cwt., 2s. Carriage Paid.

WORM POWDER

Is a certain remedy for removing Worms and clearing Worms Out of Use; it is to be applied. Sprinkle sparingly fairly thickly on the Grass and water copiously.
14 lbs. 1 cwt. 1/2 cwt. 1/4 cwt. 1/8 cwt. 1/16 cwt.
3/- 5/- 7/6 12/6 20/- 35/- 45/- 10/-

Use also GOW'S TOBACCO POWDER & QUASSIA EXTRACT
Ask your Seedsman for the above and reduce all imitations
HUNTER & GOW, Ltd., 31 Thomas Street, LIVERPOOL

Ask Your Nurseryman or Seedsman

For the following Well Known and Highly
Efficient Horticultural Preparations.

THE CHEAPEST INSECTICIDE OF THE DAY

"NIQUAS"

(NON-POISONOUS) IMPROVED

A Concentrated Extract of Quassia combined with other valuable ingredients, forming a cheap, safe, and effective Insecticide for syringing and dipping. It destroys all Insect Pests infesting Trees and Plants, whilst no possible injury to vegetation can result from its use. It can be applied with syringes or pump, or used for dipping.
PRICES—Half-pint, 1/-; pint, 1/6; quart, 2/6; half-gallon, 4/-; gallon, 7/6; five gallons, 25/-; ten gallons, 45/-; 1 gallon sufficient for 20 gallons of water.

STANDEN'S MANURE

(Established over 35 Years)

Exceeds all others in General Fertilising Properties and Staying Powers
Analysis on Application

Sold in Tins, 66/-, 1/-, 2/3, 3/6 each; and in Kegs, well secured, to prevent loss through exposure, 28 lbs., 8/6; 56 lbs., 13/6; 112 lbs., 22/6

CORRY'S

"OPTIMUS" WORM POWDER

(NON-POISONOUS)

For the complete destruction of Worms on Lawns, Bowling Greens
Putting Greens, and Golf Links.

NOT INJURIOUS TO ANIMALS OR BIRDS.

Price—

1 lb. 7 14 28 56 112 5 cwt. 10 cwt. 1 ton
Each 1/3 3/- 5/- 7/6 12/- 6/- 57/6 110/- 210/-

For Fumigating in Greenhouses.

"LETHORION"

IMPROVED METAL CONES

Registered No. 92,597

To destroy Insect Pests. The Candle attached to each Cone only needs lighting, and there is no further trouble. They are most efficacious.

No. 1. For frames and "lean-to's" up to 1,000 cubic feet. Price, 3d. each.

No. 2. For small greenhouses up to 1,500 cubic feet. Price, 8d. each.

No. 3. For a well secured house of 2,000 to 2,500 cubic feet. Price, 1/- each.

FOWLER'S LAWN SAND

This preparation is for destroying Daisies and other weeds on lawns and at the same time stimulating the growth of the grass. If one tin is tried as a sample, its value will be at once appreciated. Sales are largely increasing.

Tins, 1/-, 2/6, and 5/- each; Kegs, 5 cwt., 8/6; 1 cwt., 16/-; 1 cwt., 30/-

ELLIOTT'S

"SUMMER CLOUD" SHADING

Registered Trade Mark No. 14,629.

(The only genuine original and improved article)

For Greenhouses. A pleasant green shade is given to the glass. In packets, 1/- for 100 feet of glass, and 2/6 each for 300 feet.

Sole Manufacturers:

CORRY & Co., Ltd., LONDON

Merchants and Manufacturers of Nurserymen, Seedsmen and Florists' Sundries and Tobacco Preparations Free of Duty, for Agricultural and Horticultural Purposes.



SLUGS SLUGS SLUGS

SANITAS POWDER will rid your Garden of Slugs, and protect your Seeds and Plants from all pests such as Slugs, Worms, Rats, Mice, Sparrows, Cats, &c.

Leaflet and Free Sample with instructions Free.

6d. and 1/- Tins and 15/- per Cwt.

F. O. R. London.

of all Chemists, Stores and Nurserymen.

THE SANITAS CO., Ltd.,

Limehouse, London, E.

Awarded Medal at Royal Horticultural Exhibition, 1911.

Swedes. A very good lot of swedes on sale, prices remaining high. Muttons and seakale were supplied in large quantities—far more than last month; prices varied. Rhubarb, Young Onions, were on sale; prices very much reduced.

Fruit. This and 3/4 Seckin apples are now almost exhausted. Newtown Pippins continue to be obtainable. Good fruits from England which arrived here comprised of the following: Grapes, straw fruit, peaches and melons. The supply of foreign produce is increasing daily.

Flowers. Supplies of cut flowers were far better than last month. A small lot of English grown Sweet Peas were offered and very readily disposed of. Gladioli were also on sale; such varieties as Blushing Bride and Peach Blossom were obtainable. Double White Narcissus arrived in small lots, and were soon purchased. Flowering plants were in good demand; white, blue and pink Hydrangeas were to be had in various sizes.

The following is a price list for the month:—

Fruit.		From	To
		s. d.	s. d.
Apples			
American	per barrel	20 0	27 6
Australian	per case	9 0	17 6
Grapes (English)	per 5 lb. box	10 6	20 0
" (Cape)	per lb.	0 8	1 0
Gooseberries	" " "	1 0	1 0
Melons	per each	1 0	3 6
Peaches	per dozen	5 0	12 6
Strawberries	per lb.	5 6	5 9
" Seconds	" " "	2 0	3 0
VEGETABLES.			
Asparagus	per bunch	0 8	1 0
Cabbages (York)	per load	20 0	15 0

VEGETABLES.		From	To
		s. d.	s. d.
Cauliflowers	per basket	5 0	6 0
" Seconds	" " "	1 3	3 0
Celery	per bunch	1 0	1 6
Carrots	per doz. bunches	2 0	2 9
Cucumbers	per dozen	1 0	5 6
Lettuce	" " "	1 2	1 1
Parsnips	per cwt.	1 9	2 6
Parsley	per float	1 2	1 6
Onions	per bag	12 6	11 6
Leeks	per dozen	0 10	1 0
Scallions	per bunch	0 1	0 9
Swedes	per cwt.	1 11	2 1
Beet	per bunch	0 6	0 8
French Beans	per lb.	1 3	1 5
Spinach	per half-bushel	1 1	1 6
Radish	per doz. bunches	0 10	1 0
Seakale	per box	2 9	1 6
Mint	per doz. bunches	0 8	1 2
Thyme	" " "	2 3	2 9

Flowers.		From	To
		s. d.	s. d.
Anemone	per doz. bunches	2 0	1 0
St. Bridgid	" " "	2 6	3 6
Carnations	" " "	2 6	4 0
" Malmaison	per doz. blooms	1 6	2 6
Narcissus	per doz. bunches	3 6	5 6
Gladioli	" " "	8 0	9 0
" The Bride	" " "	1 0	6 6
Lily-of-the-Valley	" " "	0 9	2 3
Roses	per doz. blooms	1 6	7 6
Sweet Peas	per bunches	5 0	6 6
Tulips	" " "	0 9	2 0
Hydrangeas	each plant	1 2	1 9
Spirea	" " "	0 6	0 9
Pelargonium	" " "		

J. J. C.

Smith's "Perfect"
Patent Powder

WEED KILLER

MARVELLOUS INVENTION

MOST EFFECTIVE

Nothing like it ever seen before. Soluble in Cold Water. All Tins Free. No Return Empties

4 Tins when mixed with water will cover about 400 square yards.

TESTIMONY

ENNISCORTHY

The Powder Weed Killer
I got from you last month
is the best I ever used.

GLENELLEN, MILTOWN

Your Weed Killer is the
only one I ever tried that is
any use. Yours never fails
—L. CREAGHE CREAGHE—
HOWARD

1 Tin, sufficient to make	25 gallons	£0 2 0
4 Tins	" 100 "	0 7 6
8 Tins	" 200 "	0 14 6
12 Tins	" 300 "	0 19 0
20 Tins	" 500 "	1 11 0
40 Tins	" 1,000 "	2 15 0

Carriage Paid on 3 Tins and upwards to Stations in Ireland.

SMITH'S LIQUID WEED KILLER

One gallon to make 25 gallons for use

1 gallon	2 0	6 gallons	11 0	16 gallons	1 5 0
2 gallons	4 0	8 "	14 6	18 "	1 9 0
3 "	5 0	10 "	16 0	20 "	1 11 0
4 "	7 0	12 "	19 6	40 "	2 15 0
5 "	9 0				

Carriage Paid on 8 gallons and upwards.

4 Gallons when mixed will cover an area of about 400 square yards.

Double Strength (1 to 50)		PRICES —	
1 gallon	4 0	5 gallons	15 6
2 gallons	7 6	6 "	18 6
3 "	10 0	8 "	24 0
4 "	13 6	10 gallons	29 0
		12 "	32 6
		14 "	102 6

Carriage Paid on 4 gallons & upwards.—Drums and Casks charged extra, but full price allowed when returned in good condition, carriage paid

IRISH AGENT—

NOTICE.—These Preparations are Poisonous.

Sole Proprietors, MARK SMITH, Ltd.

D. M. WATSON, M.P.S., Horticultural Chemist

61 South Great George's Street

Telephone, 1971

DUBLIN

Insecticides, Fungicides, Fumigants, Spraying Machines, &c.

Miscellaneous

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND

TRAINING OF

Agriculture, Forestry, Horticulture
Creamery Management, &c.

Persons who desire to attend any of the courses for the above mentioned subjects, to be provided by the Department during the year 1916-17, should apply without delay for prospectuses, &c., to

THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion St., Dublin.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND

TRAINING OF WOMEN FOR FARM WORK.

The Department of Agriculture and Technical Instruction for Ireland have made arrangements for a further Special Course of Training in Farm Work to be given at the Munster Dairy School, Cork, to young women who desire to offer themselves for work on farms & substitutes for young men who have joined the Army or the Navy.

The course will be sufficient to render a single young woman useful on a farm. It will also be arranged that those who, from any cause, may not be able to do farm labour to test their capabilities before actually entering upon service.

For particulars apply to

THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion St., Dublin.

AUTO-SHREDS

For destroying Maggots, Mealy Bugs, all Pests infesting plants under glass. Simple to use, no apparatus required. Boxes to fumigate 1,000 cubic feet, 10,000 cubic feet, 25,000 cubic feet. Obtainable of Seedsmen and Florists; if unobtainable apply direct—

W. DARLINGTON & SONS,

Ltd.

Wholesale Horticultural Sundries, Hackney, London, N.E.

Trade Terms and Catalogue of Sundries upon receipt of 10/-

THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion St., Dublin.

THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion St., Dublin.

WILLER.
BRED IN GREAT BREEDING,
No matter how much solution will kill all
the eggs of the parasite of the path, &c.
WILLER.
1-10 for 10 cubic solution
1-10 " 25 " "
1-10 " 50 " "
1-10 " 100 " "
1-10 " 200 " "
1-10 " 400 " "
1-10 " 800 " "
1-10 " 1,600 " "
1-10 " 3,200 " "
1-10 " 6,400 " "
1-10 " 12,800 " "
1-10 " 25,600 " "
1-10 " 51,200 " "
1-10 " 102,400 " "
1-10 " 204,800 " "
1-10 " 409,600 " "
1-10 " 819,200 " "
1-10 " 1,638,400 " "
1-10 " 3,276,800 " "
1-10 " 6,553,600 " "
1-10 " 13,107,200 " "
1-10 " 26,214,400 " "
1-10 " 52,428,800 " "
1-10 " 104,857,600 " "
1-10 " 209,715,200 " "
1-10 " 419,430,400 " "
1-10 " 838,860,800 " "
1-10 " 1,677,721,600 " "
1-10 " 3,355,443,200 " "
1-10 " 6,710,886,400 " "
1-10 " 13,421,772,800 " "
1-10 " 26,843,545,600 " "
1-10 " 53,687,091,200 " "
1-10 " 107,374,182,400 " "
1-10 " 214,748,364,800 " "
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1-10 " 858,993,459,200 " "
1-10 " 1,717,986,918,400 " "
1-10 " 3,435,973,836,800 " "
1-10 " 6,871,947,673,600 " "
1-10 " 13,743,895,347,200 " "
1-10 " 27,487,790,694,400 " "
1-10 " 54,975,581,388,800 " "
1-10 " 109,951,162,777,600 " "
1-10 " 219,902,325,555,200 " "
1-10 " 439,804,651,110,400 " "
1-10 " 879,609,302,220,800 " "
1-10 " 1,759,218,604,441,600 " "
1-10 " 3,518,437,208,883,200 " "
1-10 " 7,036,874,417,766,400 " "
1-10 " 14,073,748,835,532,800 " "
1-10 " 28,147,497,671,065,600 " "
1-10 " 56,294,995,342,131,200 " "
1-10 " 112,589,990,684,262,400 " "
1-10 " 225,179,981,368,524,800 " "
1-10 " 450,359,962,737,049,600 " "
1-10 " 900,719,925,474,099,200 " "
1-10 " 1,801,439,850,948,198,400 " "
1-10 " 3,602,879,701,896,396,800 " "
1-10 " 7,205,759,403,792,793,600 " "
1-10 " 14,411,518,807,585,587,200 " "
1-10 " 28,823,037,615,171,174,400 " "
1-10 " 57,646,075,230,342,348,800 " "
1-10 " 115,292,150,460,684,697,600 " "
1-10 " 230,584,300,921,369,395,200 " "
1-10 " 461,168,601,842,738,790,400 " "
1-10 " 922,337,203,685,477,580,800 " "
1-10 " 1,844,674,407,370,955,161,600 " "
1-10 " 3,689,348,814,741,910,323,200 " "
1-10 " 7,378,697,629,483,820,646,400 " "
1-10 " 14,757,395,258,967,641,292,800 " "
1-10 " 29,514,790,517,935,282,585,600 " "
1-10 " 59,029,581,035,870,565,171,200 " "
1-10 " 118,059,162,071,741,130,342,400 " "
1-10 " 236,118,324,143,482,260,684,800 " "
1-10 " 472,236,648,286,964,521,369,600 " "
1-10 " 944,473,296,573,929,042,739,200 " "
1-10 " 1,888,946,593,147,858,085,478,400 " "
1-10 " 3,777,893,186,295,716,170,956,800 " "
1-10 " 7,555,786,372,591,432,341,913,600 " "
1-10 " 15,111,572,745,182,864,683,827,200 " "
1-10 " 30,223,145,490,365,729,367,654,400 " "
1-10 " 60,446,290,980,731,458,735,308,800 " "
1-10 " 120,892,581,961,462,917,470,617,600 " "
1-10 " 241,785,163,922,925,834,941,235,200 " "
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1-10 " 967,140,655,691,703,339,764,940,800 " "
1-10 " 1,934,281,311,383,406,679,529,881,600 " "
1-10 " 3,868,562,622,766,813,359,059,763,200 " "
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1-10 " 15,474,250,491,067,253,436,239,052,800 " "
1-10 " 30,948,500,982,134,506,872,478,105,600 " "
1-10 " 61,897,001,964,269,013,744,956,211,200 " "
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1-10 " 1,980,704,062,856,608,439,839,398,758,400 " "
1-10 " 3,961,408,125,713,216,879,678,797,516,800 " "
1-10 " 7,922,816,251,426,433,759,357,595,033,600 " "
1-10 " 15,845,632,502,852,867,518,715,190,067,200 " "
1-10 " 31,691,265,005,705,735,037,430,380,134,400 " "
1-10 " 63,382,530,011,411,470,074,860,760,268,800 " "
1-10 " 126,765,060,022,822,940,149,721,520,537,600 " "
1-10 " 253,530,120,045,645,880,299,443,041,075,200 " "
1-10 " 507,060,240,091,291,760,598,886,082,150,400 " "
1-10 " 1,014,120,480,182,583,521,197,772,164,300,800 " "
1-10 " 2,028,240,960,365,167,042,395,544,328,601,600 " "
1-10 " 4,056,481,920,730,334,084,791,088,657,203,200 " "
1-10 " 8,112,963,841,460,668,169,582,177,314,406,400 " "
1-10 " 16,225,927,682,921,336,339,164,354,628,812,800 " "
1-10 " 32,451,855,365,842,672,678,328,709,257,625,600 " "
1-10 " 64,903,710,731,685,345,356,657,418,515,251,200 " "
1-10 " 129,807,421,463,370,690,713,314,837,030,502,400 " "
1-10 " 259,614,842,926,741,381,426,628,674,061,004,800 " "
1-10 " 519,229,685,853,482,762,853,257,348,122,009,600 " "
1-10 " 1,038,459,371,706,965,525,706,514,696,244,019,200 " "
1-10 " 2,076,918,743,413,931,051,413,029,392,488,038,400 " "
1-10 " 4,153,837,486,827,862,102,826,058,784,976,076,800 " "
1-10 " 8,307,674,973,655,724,205,652,117,569,952,153,600 " "
1-10 " 16,615,349,947,311,448,411,304,235,139,904,307,200 " "
1-10 " 33,230,699,894,622,896,822,608,470,279,808,614,400 " "
1-10 " 66,461,399,789,245,793,645,216,940,559,617,228,800 " "
1-10 " 132,922,799,578,491,587,290,433,881,119,234,457,600 " "
1-10 " 265,845,599,156,983,174,580,867,762,238,468,915,200 " "
1-10 " 531,691,198,313,966,349,161,735,524,476,937,830,400 " "
1-10 " 1,063,382,396,627,932,698,323,471,048,953,873,660,800 " "
1-10 " 2,126,764,793,255,865,396,646,942,097,907,747,321,600 " "
1-10 " 4,253,529,586,511,730,793,293,884,195,815,494,483,200 " "
1-10 " 8,507,059,173,023,461,586,587,768,391,631,988,966,400 " "
1-10 " 17,014,118,346,046,923,173,175,536,783,263,977,932,800 " "
1-10 " 34,028,236,692,093,846,346,351,073,566,527,955,865,600 " "
1-10 " 68,056,473,384,187,692,692,702,147,133,055,911,731,200 " "
1-10 " 136,112,946,768,375,385,385,404,294,266,111,823,462,400 " "
1-10 " 272,225,893,536,750,770,770,808,588,532,223,646,924,800 " "
1-10 " 544,451,787,073,501,541,541,617,177,064,447,293,851,200 " "
1-10 " 1,088,903,574,147,003,083,083,234,354,128,894,587,702,400 " "
1-10 " 2,177,807,148,294,006,166,166,468,708,257,789,175,404,800 " "
1-10 " 4,355,614,296,588,012,332,332,937,416,515,578,350,809,600 " "
1-10 " 8,711,228,593,176,024,664,665,874,833,031,141,719,200 " "
1-10 " 17,422,457,186,352,049,329,331,749,666,262,283,438,400 " "
1-10 " 34,844,914,372,704,098,658,663,499,332,524,566,876,800 " "
1-10 " 69,689,828,745,408,197,317,327,998,665,049,113,753,600 " "
1-10 " 139,379,657,490,816,394,634,655,997,330,098,227,507,200 " "
1-10 " 278,759,314,981,632,789,269,311,994,660,196,455,014,400 " "
1-10 " 557,518,629,963,265,578,538,623,989,320,392,910,028,800 " "
1-10 " 1,115,037,259,926,531,157,077,247,978,640,785,820,057,600 " "
1-10 " 2,230,074,519,853,062,314,154,494,957,281,571,640,115,200 " "
1-10 " 4,460,149,039,706,124,628,308,989,914,563,143,280,230,400 " "
1-10 " 8,920,298,079,412,249,256,617,979,829,126,286,560,460,800 " "
1-10 " 17,840,596,158,824,498,513,335,959,658,252,573,120,921,600 " "
1-10 " 35,681,192,317,648,997,026,671,919,316,505,146,241,843,200 " "
1-10 " 71,362,384,635,297,994,053,343,838,633,010,292,483,686,400 " "
1-10 " 142,724,769,270,595,988,106,687,677,266,020,584,967,372,800 " "
1-10 " 285,449,538,541,191,976,213,375,354,532,041,169,934,745,600 " "
1-10 " 570,899,077,082,383,952,426,750,709,064,081,839,869,491,200 " "
1-10 " 1,141,798,154,164,767,904,853,501,418,128,163,679,738,982,400 " "
1-10 " 2,283,596,308,329,535,809,707,002,836,256,327,359,477,964,800 " "
1-10 " 4,567,192,616,659,071,619,414,005,672,512,654,718,955,939,600 " "
1-10 " 9,134,385,233,318,143,238,828,011,345,025,309,437,911,879,200 " "
1-10 " 18,268,770,466,636,286,477,656,022,690,050,618,875,823,748,400 " "
1-10 " 36,537,540,933,272,572,955,312,045,380,101,237,751,647,496,800 " "
1-10 " 73,075,081,866,545,145,911,624,090,760,202,475,503,294,993,600 " "
1-10 " 146,150,163,733,090,291,823,248,181,520,404,951,007,589,987,200 " "
1-10 " 292,300,327,466,180,583,646,496,363,040,809,902,015,179,974,400 " "
1-10 " 584,600,654,932,361,167,293,292,726,081,619,804,030,359,948,800 " "
1-10 " 1,169,201,309,864,722,334,586,585,452,163,239,608,060,719,917,600 " "
1-10 " 2,338,402,619,729,444,669,173,171,904,366,479,216,121,439,835,200 " "
1-10 " 4,676,805,239,458,889,338,346,343,808,732,958,432,242,879,670,400 " "
1-10 " 9,353,610,478,917,778,676,692,687,617,465,916,864,485,759,340,800 " "
1-10 " 18,707,220,957,835,557,353,385,375,234,931,833,731,971,518,681,600 " "
1-10 " 37,414,441,915,671,114,706,770,750,469,863,667,463,943,037,363,200 " "
1-10 " 74,828,883,831,342,229,413,541,500,939,727,327,327,886,086,726,726,400 " "
1-10 " 149,657,767,662,684,458,827,083,001,879,454,654,654,772,153,452,800 " "
1-10 " 299,315,535,325,369,917,654,166,003,758,909,309,309,544,306,905,600 " "
1-10 " 598,631,070,650,739,835,311,332,007,517,818,618,618,108,811,811,200 " "
1-10 " 1,197,262,141,301,479,670,622,664,015,035,637,237,237,217,623,623,400 " "
1-10 " 2,394,524,282,602,959,341,245,328,030,071,274,474,474,435,247,246,800 " "
1-10 " 4,789,048,565,205,918,682,490,656,060,142,548,948,948,870,494,493,600 " "
1-10 " 9,578,097,130,411,837,364,981,312,120,285,097,897,897,740,988,987,200 " "
1-10 " 19,156,194,260,823,674,729,962,624,240,570,195,795,795,481,977,974,400 " "
1-10 " 38,312,388,521,647,349,459,925,248,480,110,391,591,591,963,955,948,800 " "
1-10 " 76,624,777,043,294,698,918,850,496,960,220,783,183,183,927,911,897,600 " "
1-10 " 153,249,554,086,589,397,837,701,992,920,441,566,366,366,854,823,795,200 " "
1-10 " 306,499,108,173,178,795,675,403,984,882,913,132,732,732,170,847,590,400 " "
1-10 " 612,998,216,346,357,591,350,807,969,765,826,265,465,465,341,695,180,800 " "
1-10 " 1,225,996,432,692,715,182,701,615,939,531,652,930,930,683,390,361,600 " "
1-10 " 2,451,992,865,385,430,365,403,231,879,063,305,861,861,366,780,723,200 " "
1-10 " 4,903,985,730,770,860,730,806,463,758,126,611,723,723,733,561,446,400 " "
1-10 " 9,807,971,461,541,721,461,613,927,516,253,223,446,446,467,122,800 " "
1-10 " 19,615,942,923,083,442,923,227,834,532,506,446,446,467,122,800 " "
1-10 " 39,231,885,846,166,885,455,655,669,065,012,892,892,934,245,600 " "
1-10 " 78,463,771,692,333,771,911,311,338,130,025,785,785,868,491,200 " "
1-10 " 156,927,543,384,667,543,822,622,676,260,051,571,571,736,982,400 " "
1-10 " 313,855,086,769,335,086,645,245,352,520,102,114,114,147,396,800 " "
1-10 " 627,710,173,538,670,173,290,490,705,040,204,228,228,294,793,600 " "
1-10 " 1,255,420,347,077,340,346,580,980,140,408,456,456,589,587,200 " "
1-10 " 2,510,840,694,154,680,693,161,960,280,816,912,912,718,174,400 " "
1-10 " 5,021,681,388,309,361,386,323,920,561,632,824,824,436,348,800 " "
1-10 " 10,043,362,776,618,722,772,647,840,112,264,648,648,872,697,600 " "
1-10 " 20,086,725,553,237,445,545,295,680,224,528,129,129,174,539,200 " "
1-10 " 40,173,451,106,474,891,090,591,360,448,258,258,248,078,400 " "
1-10 " 80,346,902,212,949,782,182,118,720,896,516,516,496,156,800 " "
1-10 " 160,693,804,425,899,564,364,237,440,179,033,033,992,313,600 " "
1-10 " 321,387,608,851,799,128,728,474,880,358,066,066,984,627,200 " "
1-10 " 642,775,217,703,598,257,456,949,760,716,132,132,196,254,400 " "
1-10 " 1,285,550,435,407,196,514,913,899,520,142,264,264,392,508,800 " "
1-10 " 2,571,100,870,814,393,029,827,799,040,284,528,528,785,017,600 " "
1-10 " 5,142,201,741,628,786,059,655,598,080,569,056,1056,034,400 " "
1-10 " 10,284,403,483,257,572,119,311,196,113,112,2112,068,800 " "
1-10 " 20,568,806,966,515,144,238,622,392,226,224,4224,137,600 " "
1-10 " 41,137,613,933,030,288,477,244,784,452,448,8448,275,200 " "
1-10 " 82,275,227,866,060,576,944,489,568,904,896,1697,550,400 " "
1-10 " 164,550,455,732,121,153,888,978,117,819,379,3395,100,800 " "
1-10 " 329,100,911,464,242,307,777,956,235,638,758,678,671,201,600 " "
1-10 " 658,201,822,928,484,614,555,912,471,277,517,357,343,403,200 " "
1-10 " 1,316,403,645,856,969,229,111,824,942,554,034,714,686,806,400 " "
1-10 " 2,632,807,291,713,938,458,223,649,888,108,808,142,833,372,800 " "
1-10 " 5,265,614,

Introduce the finer Potatoes, more forward Vegetables IN ONE WEEK.

For the purpose of growing the finest Potatoes and Vegetables which
can be obtained in the shortest time, a special Saline and Nitrogenous chemical, for sale
under the name of "GROWER'S FRIEND," is available from the 1st months and
throughout the growing season.

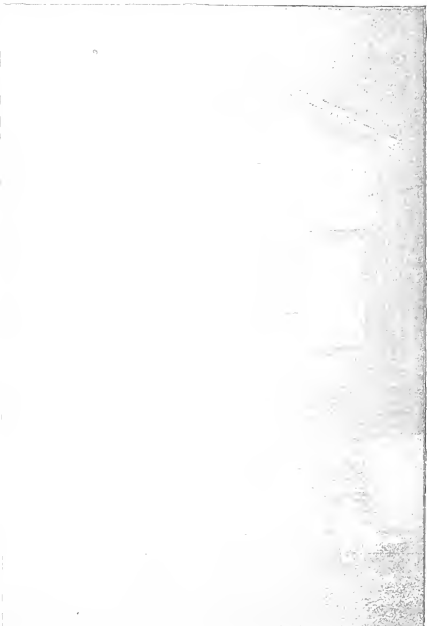
WATERBURY'S Soda

is a special Saline and Nitrogenous chemical. The results are
obtained in a very short time. Soda is very quick in its
action and is very effective.

For the purpose of growing the finest Potatoes and Vegetables, apply gratis
a small quantity of "GROWER'S FRIEND."

WATERBURY'S Soda is available from the 1st months and
throughout the growing season. For the purpose of growing the finest
Potatoes and Vegetables, apply gratis a small quantity of "GROWER'S FRIEND."

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Potatoes and Vegetables, apply gratis a small quantity of "GROWER'S FRIEND."



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Other Seed - 1000

For Destroying Weeds, Mosses, Garden Mites, etc.

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KINGSTOWN, IRELAND.

POWDER WEED KILLER.

Disables roots in cold water.

Size of N. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

LIQUID WEED KILLER.

Strength 4 in 50. Uses on application.

Liquid Weed Killer. Strength 4 in 50. Uses on application. 1 gallon, 2 50 in 40, 3 50 in 30, 4 50 in 20, 5 50 in 10, 6 50 in 5, 7 50 in 2, 8 50 in 1, 9 50 in 1/2, 10 50 in 1/4, 11 50 in 1/8, 12 50 in 1/16, 13 50 in 1/32, 14 50 in 1/64, 15 50 in 1/128, 16 50 in 1/256, 17 50 in 1/512, 18 50 in 1/1024, 19 50 in 1/2048, 20 50 in 1/4096, 21 50 in 1/8192, 22 50 in 1/16384, 23 50 in 1/32768, 24 50 in 1/65536, 25 50 in 1/131072, 26 50 in 1/262144, 27 50 in 1/524288, 28 50 in 1/1048576, 29 50 in 1/2097152, 30 50 in 1/4194304, 31 50 in 1/8388608, 32 50 in 1/16777216, 33 50 in 1/33554432, 34 50 in 1/67108864, 35 50 in 1/134217728, 36 50 in 1/268435456, 37 50 in 1/536870912, 38 50 in 1/1073741824, 39 50 in 1/2147483648, 40 50 in 1/4294967296, 41 50 in 1/8589934592, 42 50 in 1/17179869184, 43 50 in 1/34359738368, 44 50 in 1/68719476736, 45 50 in 1/137438953472, 46 50 in 1/274877906944, 47 50 in 1/549755813888, 48 50 in 1/1099511627776, 49 50 in 1/2199023255552, 50 50 in 1/4398046511104, 51 50 in 1/8796093022208, 52 50 in 1/17592186044416, 53 50 in 1/35184372088832, 54 50 in 1/70368744177664, 55 50 in 1/140737488355328, 56 50 in 1/281474976710656, 57 50 in 1/562949953421312, 58 50 in 1/1125899906842624, 59 50 in 1/2251799813685248, 60 50 in 1/4503599627370496, 61 50 in 1/9007199254740992, 62 50 in 1/18014398509481984, 63 50 in 1/36028797018963968, 64 50 in 1/72057594037927936, 65 50 in 1/144115188075855872, 66 50 in 1/288230376151711744, 67 50 in 1/576460752303423488, 68 50 in 1/1152921504606846976, 69 50 in 1/2305843009213693952, 70 50 in 1/4611686018427387904, 71 50 in 1/9223372036854775808, 72 50 in 1/18446744073709551616, 73 50 in 1/36893488147419103232, 74 50 in 1/73786976294838206464, 75 50 in 1/147573952589676412928, 76 50 in 1/295147905179352825856, 77 50 in 1/590295810358705651712, 78 50 in 1/1180591620717411303424, 79 50 in 1/2361183241434822606848, 80 50 in 1/4722366482869645213696, 81 50 in 1/9444732965739290427392, 82 50 in 1/18889465931478580854784, 83 50 in 1/37778931862957161709568, 84 50 in 1/75557863725914323419136, 85 50 in 1/151115727451828646838272, 86 50 in 1/302231454903657293676544, 87 50 in 1/604462909807314587353088, 88 50 in 1/1208925819614629174706176, 89 50 in 1/2417851639229258349412352, 90 50 in 1/4835703278458516698824704, 91 50 in 1/9671406556917033397649408, 92 50 in 1/19342813113834066795298816, 93 50 in 1/38685626227668133590597632, 94 50 in 1/77371252455336267181195264, 95 50 in 1/154742504910672534362390528, 96 50 in 1/309485009821345068724781056, 97 50 in 1/618970019642690137449562112, 98 50 in 1/1237940039285380274899124224, 99 50 in 1/2475880078570760549798248448, 100 50 in 1/4951760157141521099596496896.

"ACME" LAMP & CO.

Marvellous killing effect on daisies, moss, and other weeds in lawns. Fertilizes the grass. No other manure needed. 7 lbs. 1 3; 14 lbs. 2 3; 28 lbs. 5 3; 56 lbs. 10 3. Carriage paid on 56 lbs.

Send for Price List of Garden Chemicals.

ACME CHEMICALS, LTD.
TONBRIDGE, KENT, and FINE, ST.
BOLTON, LANCASHIRE

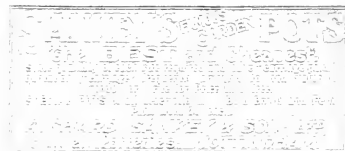
DUBLIN AGENTS: H. & S. CO., LTD., 10, ELPHINSTONE ST., DUBLIN 1.

Owing to the fact that our works have been given over to the requirements of H. M. Government, we are obliged to discontinue making, until further notice, our well-known Glasshouses, Conservatories, and Horticultural Buildings. We have, however, certain stock which in order to make room for additional machinery, is being offered at pre-war prices in order to clear.

List of Clearance Lines may be had on Application.

BOLTON & PAUL, Ltd.
Horticultural Builders
NORWICH, Eng.

SEED of choice and rare ALPINES, from a very large collection. All those who possess a ROCK GARDEN should send for my Catalogue, they will find something new and desirable. R. CORRETON, CHENE-BOURG, GENEVA.



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under the auspices of

**Kingstowe
Horticultural Society**

Wednesday, 21st August, 1916

Competitions for Prize Cups,
Medals and Cash

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Kingstown Flower Show

Irish Peasantry Society Prizes for Cottagers,
Artizans and 1st Children for Houses,
Gardens, and Home Industries

Special Exhibition of Home Industries at
Technical School on 20th July

Apply for Prize Schedule at the Technical School, Kingstown

R. MACDONALD, Secretary

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Begonias, Pelargoniums

Sweet Peas

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Cut Flowers

Carnations, etc.

Fruits, Vegetables

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AGRICULTURAL BUILDINGS.

BUILDINGS.

650

ENGINEERS

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FREE CATALOGUE of photographic
plans of Horticultural Buildings free
on application.

SECTION

Royal Horticultural Society of Ireland.

THE monthly meeting of the council was held on the 9th ult., the following members being present, viz.: Robt. Anderson, W. F. Gunn, J.P.; H. Bill, Jas. Robertson, J.P.; J. J. McDonough, J. Wylie-Henderson, T. Masterson, E. D'Olier, G. M. Ross, M.A.; A. V. Montgomery, H. P. Goodbody, Geo. Watson, and Sir Frederick W. Moore, with Mr. E. H. Walpole presiding.

The principal business transacted was the consideration of the autumn show, the results of which have now been sent to members and prospective exhibitors as per the following circular letter, viz.:—

"The Council of the Royal Horticultural Society of Ireland met to consider the desirability of holding the autumn show. Enquiries had previously been made to ascertain the sentiments and wishes of those more immediately concerned in this show. It was felt that in the present crisis in the history of the Empire, and of our country, there was every prospect of the show not being as successful as it should be, unless it were associated with some charitable object. The incidence of the 'Entertainments Tax' render it practically impossible to promote at present a joint show and fete. After full discussion the following motion was proposed and unanimously adopted:—

"That the council, having carefully considered if an autumn show or other entertainment should be held by the Society, decided that it is neither expedient nor possible to do so. They have come to this conclusion after reviewing all the circumstances, and they feel that they may rely on the forbearance and sympathy of their members and also of intending exhibitors in the present difficult conditions."

"Your council earnestly appeal to the members not to desert this long-established and deserving society in the present crisis, and feel confident that this appeal will meet with a willing response."

"(Signed) E. H. WALPOLE,
Chairman of Council.
F. W. MOORE,
Hon. Secretary."

Notice.

GROWERS of Narcissi have suffered during the last few years from the loss of a considerable number of bulbs owing to the attack of a disease which has so far proved impossible to cure. The Royal Horticultural Society has just appointed an investigator to study the disease and, if possible, to devise means of checking it, and the Director of the Royal Horticultural Society's Gardens, Wisley, Ripley, Surrey, would be glad if any having the disease in the foliage or bulbs of their Narcissi would send specimens to him with as full particulars as possible.

Notes Taken at Chelsea Show, May 27th.

THE Chelsea Show was disappointing from the Alpine gardener's point of view. Owing to the

extreme heat of the day the Alpines looked rather "blousy" to anyone acquainted with their natural beauty.

Wedelia candida, *Androsace cuneata*, with charming scarlet flowers, and *Primula Rusbyi* were remarked specially in Boss' exhibit. *Pinguicula heterophylla*, pale pink, was shown by Tucker, while Clarence Elliott's exhibit of *Podostemon rupicola* was quite an outstanding feature.

Almost all the plants shown were old friends to Alpine gardeners.

M. E.

If you wish to GROW ROSES and other flowers
TO PERFECTION, use

"ABOL" NON-POISONOUS INSECTICIDE

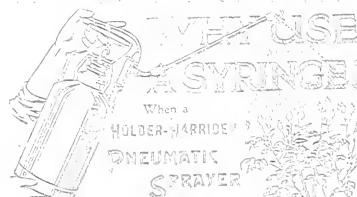
This is the best and cheapest way, for besides being the World's best pest destroyer and the finest known remedy for MILDEW on ROSES, &c., "ABOL" has manurial properties which impart health and vigour to the plants through the foliage, thus helping them to withstand fresh attacks. USED IN THE ROYAL GARDENS and recommended by experts. 4 pt. 1/-; pt. 7/6; qt. 2/6; 1 gal. 4/-; 2 gal. 7/6.

Gratis & Post Free

Readers should write to "In a Perfect Garden," Illustrated guide to 1500 roses, pests, and methods of treatment.

Of all Nurseriesmen &c.

See the and Mrs. E. A. WHITL, Ltd., 10, Bedford, Bedford Way, Kent.



Will do ten times the work in a fraction of the time.

Will do it more completely, more thoroughly, and with no waste of fluid.

Prices from 21/6.

Holder-Harrison Ltd., 35, 37 Noble St., London, E.C.

Discrete Markets

There is a large variety of other fruits also offered, and some of them are shipped. Peaches, especially, are in an urgent demand at present.

Plants of the 7110-*serotina* are well represented
among the 10120-*serotina* and 10120-*serotina* plants, &c.

There were mainly two families of one dozen (12000) of each, and were readily disposed of. The quantities were supplied in quantity, particularly in the latter half of the month. Some quantities of tobacco were on sale and were of considerable attention; supply hardly as in the latter half of the month and Cross-channel. Some of the goods were of good quality.


During the 1990s, Futures, Stocks (ten-week), Foreign, and Treasury note, a clearance was possible (Table 1).

Your rate of C_{60} = price list for the month :—

	Q_{eff}/pc		From	To
			s. d.	s. d.
$\langle \text{mean } Q_{\text{eff}} \rangle = \langle \text{mean } Q_{\text{eff}} \rangle$			3 0	5 0
$\langle \text{mean } Q_{\text{eff}} \rangle = \langle \text{mean } Q_{\text{eff}} \rangle$			3 3	3 6
$\langle \text{mean } Q_{\text{eff}} \rangle = \langle \text{mean } Q_{\text{eff}} \rangle$			3 0	3 6
$\langle \text{mean } Q_{\text{eff}} \rangle = \langle \text{mean } Q_{\text{eff}} \rangle$			12 0	13 6
<i>Deviations</i>				
Small	..		12 0	14 0
Small	..		8 0	9 6
Small	..		3 0	5 6

VARIABLES.

... (Squaw)	per load	14	0	28	6
... (Squaw)	per basket	14	0	16	6
... (Squaw)	"	5	0	6	6
... (Squaw)	per doz. bunches	2	3	2	9



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able Manure, also Special
Garryanthemum Manure are ever
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FLORENTINE MANURE.—1 cwt., 30 s.; ½ cwt., 12 s.; ¼ cwt., 6 s.; 1 lb., 2 s. 6 d. Carriage paid on 1 cwt. to any station in United Kingdom.

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Miscellaneous Section.

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THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merion St., Dublin.

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The Department of Agriculture and Technical Instruction for Ireland have made arrangements for a further short Special Course of Training in Farm Work to be given at the Munster Dairy School, Cork, for young women who desire to offer themselves for work on farms as substitutes for young men who have joined the Army for War Service.

The course will be sufficient to render suitable young women useful on a farm. It will also suffice to enable those who, from any cause, may not prove suitable for farm labour to test their capabilities before actually entering upon service.

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"SURREY."
The following is a list of the plants which are now on hand, and which are being sent out in the autumn. The plants are all of the best quality, and are being sent out at a very low price.

1. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

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3. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

4. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

5. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

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7. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

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10. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

11. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

12. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

13. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

14. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

15. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

16. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

17. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

18. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

19. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

20. A very fine specimen of the "Surrey" plant, which is now in flower. It is a very fine specimen, and is being sent out at a very low price.

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SAVES HEAVY WEEDING.
10 gallons of mixed solution will kill all weeds on 100 square yards of path, &c.

POWDER.
1/- 100 for 100 gallons solution
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LIQUID. 1-gal.
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1/- 100 for 100 gallons solution

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A VERY useful July flowering rock plant, *S. alpina* is not often seen in private collections, yet it forms a pretty mound of flowers, and is not fastidious regarding soil provided drainage is good. Attaining at the most about a foot in height, frequently less, a well-flowered plant is quite an attractive feature. The flowers are of a rather pleasant shade of purple, marked with yellow on the lip, which gives a bright appearance to the flowers.

Increased by means of seeds or cuttings of the young shoots in spring.

ALPINIST.

Syringa Yunnanensis.

ABOUT the middle of this June, 1916, there flowered here for the first time *Syringa Yunnanensis*. The bloom is of a pale bluish-pink when in bud, turning to white when fully developed; the foliage is of medium size, and, though not an unpleasing plant, it does not appear to be of the highest order of merit. It is, however, difficult to speak with any confidence about a shrub which is not fully grown and has only produced one or two spikes of flower.

V. GIBBS, Aldenham House, Elstree.

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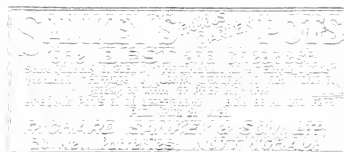
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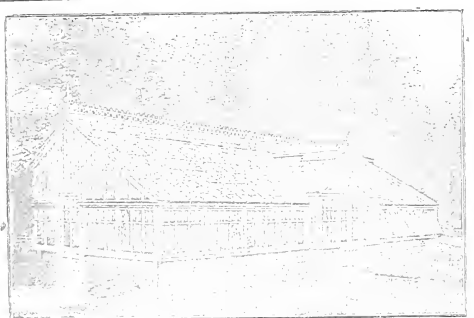
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The Crimson Satin Flower.

BREVOORTIA IDA-MALA.

MOST nurserymen's catalogues list this unique plant as *Erodia coccinea*, by which name it was for long known in gardens. A native of California, it is one of the prettiest and most striking of bulbous plants flowering in summer. It is suitable for a small border where it will not be overgrown by coarser plants, or it may be cultivated in a sunny, well-drained pocket in the rockery. The bulbs, which are comparatively small, should be planted about three inches below the surface, placing a little sharp sand above and below them. They should be left undisturbed as long as possible, and will flower regularly every year when established. The flowers, which are produced several together on stems about fifteen inches high, are tubular, of a brilliant crimson scarlet, tipped with green—a combination at once striking and effective.

GARDENER.

Salvia turkestanica superba.

WITHIN the last few years this handsome Sage has become commoner in gardens, and is well worth some attention by those who value hardy plants. The only disadvantage is that the plant is only biennial. Seeds, however, form a ready means of increase, so that it is easy to have a few plants coming on. A close watch must be kept on the seeds, as, like many others of the same family, they drop while apparently still unripe or ripen suddenly in a day or two and may be lost. Reaching a height of three feet when in flower, *S. turkestanica superba* is useful in the herbaceous border, and makes an attractive group for a considerable time. As in some other *Salvias*, the bracts surrounding the flowers form the showy part of the inflorescence, being pale pink in colour. The leaves borne by the stout stems are large and hairy, giving the plant a hoary appearance, which adds considerably to its attractions.

B.

A Valley in the Rockies.

IN the wonder world of the Canadian Rocky Mountains there is a valley where the ptarmigan live and breed. This region has been named Ptarmigan Valley, and its guardian peak, Ptarmigan Mountain. In the wild area thus named after a bird will be found one of the thousand beauty spots of Canada, including every type of scenery that belongs to a mountainous area—turbulent rivers, fed by glacial tributaries leaping in headlong flight to the lower levels on their way to the sea; alpine meadows carpeted with a profusion of flowers, canyon depths and forested retreats opening into expansive valleys, cliffs, peaks and rocky ramparts. There are beautiful lakes, deep-hearted pools, and there are signs of wild life on every hand. The hunter is rarely met with, still more rarely the artist and the naturalist, but the day is coming when this will be one of the favourite holiday haunts of the North American Continent.—*Canadian News Items*.

Irish Show Fixtures.

Co. Clare Horticultural Society. Fruit and Farm Produce Show at Ennis, on 4th October. Hon. Sec., Rev. R. Scott, Ennis.

Intermediate Characters in Various Hybrid Species of Iris.*

I.—The writer crossed various species of Iris to determine if Mendelian laws were valid between different species. The results with numerous pairs of characters showed no dominance but only a blending of characters.

Iris hoissieri, bulbous, with the beard of the sepals in the form of long straggling golden hairs 0.117 to 0.234 inch in length, crossed with I. tingitana having no trace of hair gave a hybrid with hair distinctly visible to the naked eye but less than 0.0585 inch in length.

I. tectorum (which has a tuft in place of hair) crossed with I. cengialtii (a hairy type) gave a hybrid with a light violet coloured tuft bearing a short hair.

I. xiphium (with perianth tube) crossed with I. tingitana and I. filifolia (having perianth tubes 0.975 and 0.507 inch respectively) gave hybrids with perianth tubes respectively 0.507 and 0.234 inch long.

I. clarkii with solid stems crossed with I. chrysographes with the internal cavity of the stem occupying about half the diameter, gave a

* I. Dykes, W. R. (Do Mendel's Laws hold Good for Crosses between Species), in *The Gardeners' Chronicle*, Vol. LVIII., No. 1500, pp. 190-197, London, September 25, 1915.—H. Mottet, S. (Les Iris intermédiaires) in *Revue Horticole*, Year 87, No. 30, pp. 582-583, Paris, November 16, 1915

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hybrid intermediate with crested yellow almost but not entirely pure yellow.

1. *pallida* cross *legumina* species which become entirely white and a yellow protruding from the floral opening, cross with 1. *variegata* with green and herbaceous foliage, have a hybrid with spathe green in the lower portion and parchment-like in the upper portion.

The hybrid between 1. *reticulata* and 1. *bakeriana* is intermediate between the parents as regards leaf shape.

Also with regard to the colouring of the petals many hybrids are intermediate between the parents of various species, e.g., 1. *pallida* x 1. *variegata* x 1. *trojant* x 1. *variegata* x 1. *boisieri* x 1. *jumea* x 1. *fulva* x 1. *foliosa* x 1. *Forrestii* x 1. *Sibirica*.

All these cases appear to show that the law of dominance in the Mendelian sense is not universal and is not always valid for crosses between species.

With the exception of 1. *chrysographes* x 1. *Forrestii* and also possibly of 1. *pallida* x 1. *variegata* and of 1. *fulva* x 1. *foliosa* all the above hybrids were sterile both with respect to their own pollen and that of both parents. The two possible exceptions are cases in which the parents are somewhat related whilst the fertile hybrid has more definitely related parents.

11. Crossing 1. *pumila* an early flowering species (beginning to end of April) with 1. *germanica* of which the earliest flowers appear about the middle of May, gives numerous varieties named *Iris intermedia* flowering in the first half of May, thus enabling a continuous supply of Iris for three months (April to June).

These new Irises are intermediate between the two parent species not only in date of flowering but for height, leaves and dimensions of their flowers.

Actinidia Chinensis.

I RECENTLY saw this rampant-growing climber, which had covered a large area of natural rock on the face of the cliff at the back of Mr. Beamish's fine rockery at Ashbourne, Co. Cork, flowering with wonderful profusion, and, though I have been acquainted with the plant now for several years, I had never before seen this notable characteristic, though possibly it is by no means uncommon.

Unfortunately, however, the flowers were almost completely hidden under the large leaves and twining growths of the plant, and as these are an inch and a half across and of an attractive orange-yellow colour it is all the more regrettable.

Possibly on a trellis or arbor the plant when induced to flower would be much more conspicuous in that respect. Apart from the flowering period it is a most desirable subject where a climbing plant is required, as it makes rapid growth, and the young shoots are particularly attractive, being covered with red hairs, like the young leaves.

E. BECKETT, Fota.

Royal Horticultural Society of Ireland.

At the monthly meeting of the Council of the Royal Horticultural Society of Ireland, on the 12th ult., it was resolved that an appeal be made to members for contributions of garden produce for the fruit and vegetable stall at Our Sailors' Fête to be held in Lord Iveagh's grounds, 8th and

9th, of September, and the following circular letter directed to Sir James C. Moore has now been issued.

25, ELGIN ROAD, ST. STEPHEN, DUBLIN.

"Owing to the success of the Fête held in a previous letter, the Council of the Royal Horticultural Society of Ireland for the Show is being held this autumn. As members are aware, the activities of the Society have been largely directed for the past two years to securing a continuous supply of fresh fruit and vegetables for the Fête, and an immense amount of good work has been done by the Committee appointed by the Society. This work has been frequently and gratefully acknowledged. So far sufficient funds have been secured to handle and forward all produce contributed and to defray the cost of administration, as well as enabling the Committee to supplement the gifts of produce by considerable purchases of Colonial fruit in the markets on advantageous terms.

"To secure the continuance of this work still so much needed and appreciated by our Sailors, a Fête is being organised by the Lord Chancellor of Ireland and Lady O'Brien. This Fête is to be held on the 8th and 9th of September, for which Lord Iveagh has graciously given the use of his grounds. Your Committee has undertaken to secure a supply of good fruit, vegetables, and choice flowers for the Fruit and Vegetable Stall, which is to be managed by Mrs. F. V. Westby, Roebuck Castle, Lady Moore, Mrs. Webb, and others.

"I am directed by my Council to make this urgent appeal to members to send such supplies as they can to Mrs. Westby, Fruit and Vegetable Stall, Lord Iveagh's Grounds, Chunnel Street, Dublin, on September 7th, and so help the patriotic and useful effort of your Committee. It is further

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aged that only a few straggles and fruit in good condition, and flowers of remarkable nature, should be sent, so as to have a good result from this Stall in which you are so directly interested.

Members will greatly oblige, if they will kindly send me a postcard, No. 5, Molesworth Street, Dublin, intimating their intention to forward supplies.

"E. W. MOORE, Hort. Sec'y, &c."

Correspondence.

TO THE EDITOR IRISH GARDENING.

SIR, The records of the representative growers who submitted reports of the fruit crop in IRISH GARDENING, pp. 120, 121, is valuable, if sorrowful, reading. The record for Ulster is particularly bad so far as the apple crop is concerned, two "very good" and "one good" are recorded for this crop. The remainder "are below average" and "bad," the latter predominating. I write to suggest that those who submitted reports should briefly report their observations in a future issue of your valuable journal as to the why and wherefore of the failure or otherwise of their fruit trees. Where there must be so many observers, information of a valuable nature may accrue. To give an example that came under my own observation a few days ago, I saw some Bramley Seedlings with good crops of clean fruit in a back garden, while similar trees in a garden in front of the house were fruitless. I enquired of the owner to what did he attribute the fruitfulness of one lot of trees and the unfruitfulness of the other lot. He replied he thought it was due to the fact that the sun did not strike the trees in the back garden till late in the day, whilst the trees in front were exposed to the full rays of the sun immediately it arose in the sky. This may or may not be the cause, yet it shows the man had been observing.

ULSTER READER.

Catalogues.

MESSRS. W. DRUMMOND & SONS, LTD., send their new season's Catalogue of Bulbs, and if minus the usual illustrations is, nevertheless, replete with their customary selection of useful and beautiful bulbs and plants. Tulips, Narcissi, Lilies and other bulbous plants are fully represented in the best varieties, and many other bulbs and roots contribute to make up a full list of subjects for autumn planting. Manures, insecticides, and other garden sundries are offered in wide variety, and gardeners will find their requirements very well catered for by this old-established firm.

Dublin Wholesale Markets.

THE markets were well supplied during the past month with all seasonable fruits and vegetables, all of which met with keen inquiry, and prices have increased in many cases.

FRUIT.—The season for small fruit, such as red, white and black currants, gooseberries, and raspberries is practically over; the same applies to cherries and strawberries. During the early part of the month the chief supplies of strawberries came from the northern province, all of which arrived in excellent condition, and were

readily disposed of at high prices. The price for peaches varied considerably. Demand was small except on principal market days. Home growers are sending a few early varieties of apples, and inquiry is very keen for them. Grapes arrived in large quantities; prices varied.

VEGETABLES.—Despite the fact that the supply of cabbages is increasing, there is also a marked increase in price for same. Cauliflowers also met with an improved demand. Owing to the large consignments of peas, and beans which arrived, the price for them have fallen. Cucumbers, lettuce, spinach and tomatoes were abundantly supplied. Demand was equal to supply at fair prices.

FLOWERS.—Every salesman's stand was crowded with cut flowers, all of which were quite fresh, but on account of the large quantities, it was difficult to affect a clearance.

The following is a price list for the month:—

FRUIT.		From	To
		s. d.	s. d.
Apples—			
Cooking	per $\frac{1}{2}$ bushel	3 0	5 6
Best Dessert	per $\frac{1}{2}$ bushel	10 6	13 0
"	per bushel	18 0	22 6
Currants—			
Black	per lb.	0 5	0 8 $\frac{1}{2}$
Red	per lb.	0 3 $\frac{1}{2}$	0 7 $\frac{1}{2}$
White	per lb.	0 2 $\frac{1}{2}$	0 5
Gooseberries	per $\frac{1}{2}$ bushel	6 0	9 6
"	per kish	4 0	5 3
Grapes	per lb.	1 0	3 9
Loganberries	per lb.	0 10	1 3
Peaches	per dozen	4 0	10 6
" Seconds	per dozen	3 0	6 0
Plums	per kish	7 0	9 0
" Greengages	per kish	12 6	18 0

VEGETABLES.			
Cabbage	per load	10 6	27 6
Cauliflowers	per dozen	2 6	3 0
Carrots	per doz. bunches	0 10	1 6
Celery	per bunch	0 4	0 6
Cucumbers	per dozen	2 6	4 6
Lettuce	per dozen	0 2 $\frac{1}{2}$	0 6
B. Beans	per $\frac{1}{2}$ bushel	0 7	1 0
F. Beans	per lb.	0 2	0 4 $\frac{1}{2}$
Turnips	per bunch	0 4	0 8
Peas	per float	0 8	1 0
Tomatoes	per lb.	0 5	0 8
Spinach	per float	0 7	0 10
Swedes	per cwt.	1 11	2 2
V. Marrows	per dozen	1 3	2 0
Onions	per bunch	1 2	1 6

FLOWERS.			
Carnations	per doz. blooms	1 0	1 9
Comdflowers	per doz. bunches	0 6	0 9
Coreopsis	per doz. bunches	0 6	1 0
Delphinium	per doz. blooms	0 7	1 0
Gladioli	per doz. blooms	1 0	1 6
Gypsophila	per doz. bunches	3 6	5 0
Phlox	per doz. bunches	2 0	3 6
Roses	per doz. blooms	0 7	1 9
Sweet Pea	per doz. bunches	4 6	2 3
Sweet Sultan	per doz. bunches	2 6	3 0
White Heather	per doz. bunches	3 0	4 6
Lavender	per doz. bunches	2 6	4 0
Lilium longiflorum	per doz. blooms	1 0	1 6
Statice	per doz. blooms	3 9	5 0
Stock	per doz. bunches	2 6	4 0

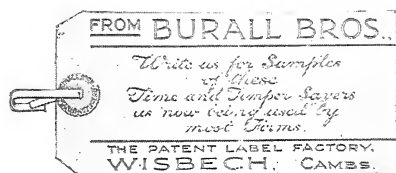
J. J. C.

Miscellaneous Section.

AN EXCEPTIONAL OPPORTUNITY offered to Clergyman's Daughter or other anxious to learn gardening. All branches from qualified Lady Gardener. Prepared R. H. S. Examination.—Beech Lodge, Gorey.

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EXTRACT.

"BODMIN, July 1st, 1916.

"I may say that I have bought plants from several other firms this year, and am now dealing with you because one small order which I sent you was immensely superior in quality and packing to any others placed with rival firms; there was simply no comparison in the results."

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'EUREKA' WEED KILLER.

SAVES WEARY WEEDING.

20 gallons of mixed solution will kill all weeds on 200 square yards of paths, &c.

POWDER.

3/-	tin for 12 galls. solution
10	" 25 " "
3/-	" 100 " "

LIQUID. 1—50.

1 gallon	- 2/-	- drum 6d.
1 "	- 3/6	- " 9d. extra
2 "	- 6/6	- " 1/6 "
5 "	- 14/-	- " 2/6 "
10 "	- 25/6	- cask 5/- "

'EUREKATINE' The successful fumigant.
'EUREKA' Insecticide. Lawn Sand, Hellebore Powder, Bordeaux Mixture, Worm Killer, Hayward's Summer Shade, &c.

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MANY THOUSANDS of well Trellised, Beautifully
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Nectarines, Quinces, Cherries, Figs,
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AS WELL AS

STANDARD TREES, 17-20 ft. BUSHES, 1-3
ft. and 3-5 ft. 5/- each.
ESPECIAL TREES, 3-5 ft. CORDONS,
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importation of bulbs we cannot
offer Hyacinths, Daisies or
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Iris, Star Tulips, Anemones, Gladioli
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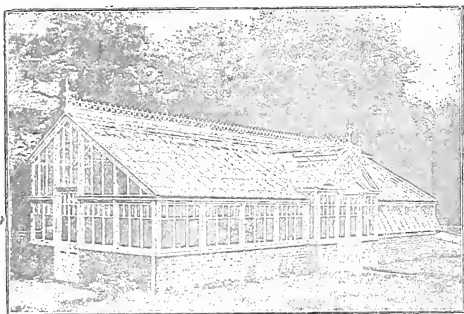
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1 —, 1/3, 1/6, 1/10, 2/4
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1/2, 1/4 & 2/8

Prepared Fibre

per bushel 4/-
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Narcissus and Daffodils

Per doz.—s. d

Barri Conspicuous, yellow, with crimson cup 0 6

Bicolor Empress, white perianth, golden trumpet 1 3

— **Madam Plemp**, the finest bicolor 1 9

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Golden Spur, clear golden-yellow 1 3

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(DOUBLE DAFFODIL) 1 3

Early White Roman Hyacinths

EXTRA SELECTED BULBS.

per doz., 3/6

Miniature Hyacinths

PINK, PURE WHITE, and PALE BLUE
per doz., 3/6

Polyanthus Narcissus

Grand Monarque, white, with yellow cup 2 3

Paper White, Grandiflora, pure white, early 1 0


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1 lb. per 200	15/-
1 lb. per 300	20/-
1 lb. per 400	25/-
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1 lb. per 700	40/-
1 lb. per 800	45/-
1 lb. per 900	50/-
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For the complete destruction of Worms on Lawns, Bowling Greens, Putting Greens, and Golf Links.

NOT INJURIOUS TO ANIMALS OR BIRDS.

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Lbs. 7 14 28 56 112 5 cwt. 10 cwt. 1 ton
Each 1/9 3/- 5/- 7/6 12/- for 57/6 110/- 210/-

For Fumigating in Greenhouses.

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 * No. 56, Continuity; raised, introduced and sent by Messrs. Sutton (A.M. 1898). No. 17, Danby Stratagem; raised, introduced and sent by Messrs. J. Carter & Co. (A.M. 1901). No. 97, Duke of Albany (Selected); introduced and sent by Messrs. Sutton & Sons, (A.M. 1901). No. 98, Duke of Albany (Re-selected); introduced and sent by Messrs. J. Carter & Co. (A.M. 1901). No. 7, Evergreen Delicatessen; raised, introduced and sent by Messrs. J. Carter & Co. (A.M. 1908). * No. 66, Glory of Devon; introduced by Messrs. R. Veitch & Sons; sent by Messrs. Barr & Sons (A.M. 1899). No. 86, Harvestmar; raised, introduced and sent by Messrs. J. Carter & Co. (A.M. 1908). No. 85, International; raised, introduced and sent by Messrs. J. Carter & Co. (A.M. 1908). No. 54, Magnum Bonum (Selected); sent by Messrs. Barr & Sons, (A.M. 1910). * No. 55, Masterpiece; raised, introduced and sent by Messrs. Sutton, (A.M. 1913). * No. 63, Matchless; raised, introduced and sent by Messrs. Sutton, (A.M. 1911). No. 109, Prince of Peas; raised, introduced and sent by Messrs. Sutton, (A.M. 1910). * No. 11, Satisfaction; raised, introduced and sent by Messrs. Sutton, (A.M. 1910). No. 90, Standard; raised by Messrs. Sharpe & Co., sent by Messrs. Barr & Sons, (A.M. 1900.)

lower than for dessert, were satisfactory. The season for plums is almost over, and supplies are becoming less each day; demand continues strong, and late prices are being realised. The supply of damsons was very large, inquiry for them being very keen, and a clearance was easily effected at high prices. Peaches were very sparingly supplied, and prices ranged high. Grapes arrived in large quantities, and made steady sale at usual figures.

VEGETABLES. Cabbages were supplied in abundance, and a clearance was difficult to effect even at very low prices. Cauliflowers. Supply not equal to demand at very high prices. Some very good celery was offered and easily disposed of at high figures. Cucumbers, carrots, beets, parsnips, and swedes were in great demand.

FLOWERS. The supply of flowers has greatly diminished; a few small lots of Dahlias, Roses, Asters, and other herbaceous flowers were the only ones offered.

The following is a price list for the month:—

	PRICE.	From	To
Apples		s. d.	s. d.
Dessert	per $\frac{1}{2}$ bushel	5 0	6 0
Cooking	"	2 6	3 3
"	per barrel	15 0	22 0
Damsons	per $\frac{1}{2}$ bushel	5 6	6 6
Grapes	per lb.	0 8	1 0
Plums	per $\frac{1}{2}$ bushel	5 6	7 0
Pears	"	5 0	5 6
"	per crate	11 6	13 6
VEGETABLES.			
Cabbages	per load	8 6	17 6
Cauliflowers	per dozen	2 6	3 6
" (seconds)	"	0 8	1 0
Celery (white)	per bunch	1 6	2 0
Beet	"	0 6	1 0
Cucumbers	per dozen	1 6	2 3
Carrots	per doz. bunches	1 0	1 3
B. Sprouts	per float	2 6	3 6
Beans (Kidney)	"	3 0	3 9
Lettuce	per dozen	0 4	0 6
Parsnips	per doz. bunches	1 3	1 9
"	per cwt.	4 6	5 6
Parsley	per float	0 4	0 7
Spinach	"	0 6	0 8
Swedes	per cwt.	1 6	1 10
Scallions	per bunch	0 10	1 0
Onions	per bag	8 0	11 0
Leeks	per bunch	0 4	0 8
Peas	per float	2 0	2 9
Thyme	per doz. bunches	1 6	3 6
Tomatoes	per lb.	0 1 $\frac{1}{2}$	0 7
FLOWERS.			
Chrysanthemums	per dozen	0 8	1 0
Asters	per doz. bunches	3 6	5 0
Daisies (large white)	"	0 6	1 3
Gaillardia	"	0 8	1 5
Gypsophila	"	1 0	1 9
Roses	per dozen	0 8	1 0
Sweet Sultan	per doz. bunches	0 6	0 10
White Heather	"	1 0	6 6

FOREIGN PRODUCE.

English Dessert Apples	per $\frac{1}{2}$ bushel	4 6	6 0
Californian New-town	per box	16 0	17 6
Grapes	per barrel	15 0	16 0
Lemons	per large case	35 0	38 0
Bananas (Giants)	"	18 0	20 0
Tomatoes	per basket	3 6	4 0
Onions (four's)	per box	10 6	12 6
" (six's)	"	11 6	16 6

Dublin Wholesale Markets.

The tone of home produce market continues excellent. As the season has approached for the marketing of large fruits, it may not be out of place to emphasise on growers the fact that only carefully graded and packed fruit receive anything like a remunerative figure.

FRUIT.—Apples, especially dessert, were in keen request, and very good prices were realised.

1453

MANY OF THE RESULTS FROM THE

15.

APES RATES PROS AND CONS

Published 1820

J. Stanger & Sons
FRUIT TREE GROWERS
AND BLOWN NURSERIES
HOUNSLOW, MIDDLESEX

What's New & Speciality

...and a million to select from

Golden Maiden Two and
Three-year Old Apples on
English Paradise.

Catalogues free on Application. Inspection invited.

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61 DAWSON ST.

1.

STREET

1000

1000 St.

30.

THE
KINDS OF

REAL

1000

1000 St.

1000 St.

Markets.

As to the weather, it was not so good as it seemed. On the 10th of August, for instance, the

forecast was that there would be large quantities of apple windfalls.

For sale; but decided that the quantity of wind was less than expected.

This is, no doubt, accounted for by the practical failure of the crop this year.

Consequently the prices realised were above the average. There were not many of the better class apples in evidence; but those in the market were of fair quality, and none seemed to show any traces of disease.

This class of apple was sent up in both boxes and barrels, as evidence of the former class of packing it was noted that better prices were realised.

There was not a good supply of American apples, and sales were slow. Pears showed a decrease, but were of fair average quality, and, as a result, very

few were sold. Some grown tomatoes were offered, but poor quality. The prices of blackberries were offered at 10s. per bush, but in the high cost of sugar, the demand for blackberries was few and sales slow.

The flowers comprised Asters, Gladioli, and outdoor Chrysanthemums, and Lilacs. Violets and American flowers were also offered, but not in large quantities. The account of the war was not so good as it seemed, but there was a fair supply of flowers, compared with the

supply of the same flowers the growing of Arum

SPRING CROPS

By the 10th of August, the

supply of the same flowers the growing of Arum

supply of the same flowers the growing of Arum

supply of the same flowers the growing of Arum



1. The first point is at the top left corner of the rectangle.



2. The second point is at the top right corner of the rectangle.

3. The third point is at the bottom left corner of the rectangle.

4. The fourth point is at the bottom right corner of the rectangle.

5. The fifth point is at the center of the rectangle.

6. The sixth point is at the top center of the rectangle.

7. The seventh point is at the bottom center of the rectangle.

8. The eighth point is at the top left corner of the rectangle.

9. The ninth point is at the top right corner of the rectangle.

10. The tenth point is at the bottom left corner of the rectangle.

Miscellaneous Section

AN EXCEPTIONAL OPPORTUNITY offered to Clergymen's Daughters, to become "Miss to learn to order". All branches must qualify. Lady Gardiner, President. R. H. S. Exchange, 100, Fleet St., London, W.C.2.

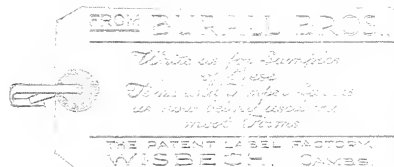
SEED of choice and rare ALPINES from a very large collection. All those who possess a ROCK GARDEN should send for my Catalogue. They will find something new and desirable. H. CORRETON, CHENE-BOURG, GENEVA.

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Have Produced the Finest
Apples and Pears on Record

On Apple 100 lbs. per tree, on Pear 150 lbs. per tree.
This is the best record ever made.

King's Acre Nurseries, Ltd.,
HEREFORD

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Leaf-mining, Maggots, Scale, and all Pests infesting plants under glass. So Simple to use, no apparatus required. Boxes to fumigate 1,000 cubic feet, 10 to 10,000 cubic feet, 30, 60, 100, 200, 400, 800, 1,600, 3,200, 6,400, 12,800, 25,600, 51,200, 102,400, 204,800, 409,600, 819,200, 1,638,400, 3,276,800, 6,553,600, 13,107,200, 26,214,400, 52,428,800, 104,857,600, 209,715,200, 419,430,400, 838,860,800, 1,677,721,600, 3,355,443,200, 6,710,886,400, 13,421,772,800, 26,843,545,600, 53,687,091,200, 107,374,182,400, 214,748,364,800, 429,496,729,600, 858,993,459,200, 1,717,986,918,400, 3,435,973,836,800, 6,871,947,673,600, 13,743,895,347,200, 27,487,790,694,400, 54,975,581,388,800, 109,951,162,777,600, 219,902,325,555,200, 439,804,651,110,400, 879,609,302,220,800, 1,759,218,604,441,600, 3,518,437,208,883,200, 7,036,874,417,766,400, 14,073,748,835,532,800, 28,147,497,671,065,600, 56,294,995,342,131,200, 112,589,990,684,262,400, 225,179,981,368,524,800, 450,359,962,737,049,600, 900,719,925,474,099,200, 1,801,439,850,948,198,400, 3,602,879,701,896,396,800, 7,205,759,403,792,793,600, 14,411,518,807,585,587,200, 28,823,037,615,171,174,400, 57,646,075,230,342,348,800, 115,292,150,460,684,697,600, 230,584,300,921,369,395,200, 461,168,601,842,738,790,400, 922,337,203,685,477,580,800, 1,844,674,407,370,955,161,600, 3,689,348,814,741,910,323,200, 7,378,697,629,483,820,646,400, 14,757,395,258,967,641,292,800, 29,514,790,517,935,282,585,600, 59,029,581,035,870,565,171,200, 118,059,162,071,741,130,342,400, 236,118,324,143,482,260,684,800, 472,236,648,286,964,521,369,600, 944,473,296,573,929,042,739,200, 1,888,946,593,147,858,085,478,400, 3,777,893,186,295,716,170,956,800, 7,555,786,372,591,432,341,913,600, 15,111,572,745,182,864,683,827,200, 30,223,145,490,365,729,367,654,400, 60,446,290,980,731,458,735,308,800, 120,892,581,961,462,917,470,617,600, 241,785,163,922,925,834,941,235,200, 483,570,327,845,851,669,882,470,400, 967,140,655,691,703,339,764,940,800, 1,934,281,311,383,406,679,529,921,600, 3,868,562,622,766,813,359,059,843,200, 7,737,125,245,533,626,718,119,686,400, 15,474,250,491,067,253,436,239,372,800, 30,948,500,982,134,506,872,478,745,600, 61,897,001,964,269,013,744,957,491,200, 123,794,003,928,538,027,489,914,982,400, 247,588,007,857,076,054,979,829,964,800, 495,176,015,714,152,109,959,859,859,800, 990,352,031,428,304,219,919,719,719,600, 1,980,704,062,856,608,439,839,439,439,200, 3,961,408,125,713,216,879,678,878,878,400, 7,922,816,251,426,433,759,357,757,757,600, 15,845,632,502,848,867,514,715,514,514,200, 31,691,265,005,697,735,029,029,029,029,600, 63,382,530,011,395,470,058,058,058,058,200, 126,765,060,022,790,940,116,116,116,116,400, 253,530,120,045,581,880,232,232,232,232,800, 507,060,240,091,163,764,464,464,464,600, 1,014,120,480,182,327,528,928,928,928,200, 2,028,240,960,364,655,056,857,857,857,600, 4,056,481,920,729,310,113,715,715,715,200, 8,112,963,840,145,820,227,431,431,431,400, 16,225,927,680,291,640,454,862,862,862,800, 32,451,855,360,583,280,909,725,725,725,600, 64,903,710,720,116,560,181,451,451,451,200, 129,807,421,440,233,120,362,902,902,902,400, 259,614,842,880,466,240,725,804,804,804,800, 519,229,685,760,932,480,145,608,608,608,608,200, 1,038,459,371,520,186,960,291,217,217,217,600, 2,076,918,743,040,373,920,582,434,434,434,200, 4,153,837,486,080,747,840,116,468,468,468,400, 8,307,674,972,160,149,680,232,936,936,936,800, 16,615,349,944,320,299,360,465,872,872,872,600, 33,230,699,888,640,598,720,931,744,931,744,931,200, 66,461,399,777,280,119,744,186,488,488,488,400, 132,922,799,554,560,239,488,372,976,976,976,800, 265,845,599,109,120,478,964,745,952,952,952,600, 531,691,198,218,240,956,928,149,490,490,490,200, 1,063,382,396,436,480,191,296,298,980,980,980,400, 2,126,764,792,872,960,382,592,596,960,960,960,800, 4,253,529,585,745,920,765,184,187,920,920,920,600, 8,507,059,171,491,840,153,368,374,840,840,840,200, 17,014,118,342,983,680,306,736,748,680,748,680,400, 34,028,236,685,967,360,613,472,149,696,149,696,800, 68,056,473,371,934,720,122,794,298,398,298,398,600, 136,112,946,743,869,440,245,588,596,596,596,200, 272,225,893,487,738,880,491,176,119,119,119,400, 544,451,786,975,477,760,982,352,238,238,238,800, 1,088,903,573,950,955,520,196,476,476,476,600, 2,177,807,147,901,911,040,392,952,952,952,200, 4,355,614,295,803,822,080,784,904,904,904,400, 8,711,228,591,607,644,168,180,180,180,800, 17,422,457,183,215,288,336,360,360,360,600, 34,844,914,366,430,576,672,720,720,720,200, 69,689,828,732,861,152,134,440,440,440,400, 139,379,657,465,722,304,268,880,880,880,800, 278,759,314,931,444,608,537,760,760,760,600, 557,518,629,862,888,121,674,152,152,152,200, 1,115,037,259,725,776,243,348,304,304,304,400, 2,230,074,519,451,552,486,696,696,696,800, 4,460,149,038,903,104,973,392,392,392,600, 8,920,298,077,806,208,194,784,784,784,200, 17,840,596,155,612,416,389,568,568,568,400, 35,681,192,311,224,832,778,113,778,113,778,800, 71,362,384,622,448,166,556,226,226,226,600, 142,724,769,244,896,332,112,452,452,452,200, 285,449,538,489,784,664,224,224,224,400, 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4,789,048,564,343,296,775,744,744,744,400, 9,578,097,128,686,592,155,148,148,148,800, 19,156,194,257,373,184,310,296,296,296,600, 38,312,388,514,746,368,620,592,592,592,200, 76,624,777,029,492,736,124,118,118,118,400, 153,249,554,058,984,148,236,236,236,800, 306,499,108,117,968,296,472,472,472,600, 612,998,216,235,936,584,944,944,944,200, 1,225,996,432,471,872,116,968,968,968,400, 2,451,992,864,943,744,232,193,193,193,800, 4,903,985,729,887,488,464,386,386,386,600, 9,807,971,459,774,976,928,772,772,772,200, 19,615,942,919,549,952,184,154,154,154,400, 39,231,885,839,098,904,368,308,308,308,800, 78,463,771,678,196,181,616,616,616,600, 156,927,543,356,392,363,232,232,232,200, 313,855,086,712,784,726,464,464,464,400, 627,710,173,424,156,145,928,928,928,800, 1,255,420,346,848,312,290,186,186,186,600, 2,510,840,693,696,624,580,372,372,372,200, 5,021,681,387,392,124,116,116,116,400, 10,043,362,774,784,248,232,232,232,800, 20,086,725,549,568,496,464,464,464,600, 40,173,451,099,136,992,928,928,928,200, 80,346,902,191,272,185,184,184,184,400, 160,693,804,382,544,370,368,368,368,800, 321,387,608,765,088,740,736,736,736,600, 642,775,217,530,176,148,148,148,200, 1,285,550,435,060,352,296,296,296,400, 2,571,100,870,120,704,592,592,592,800, 5,142,201,740,240,140,118,118,118,600, 10,284,403,480,480,236,236,236,200, 20,568,806,960,960,472,472,472,400, 41,137,613,920,192,944,944,944,800, 82,275,227,840,384,188,188,188,600, 164,550,455,680,768,376,376,376,200, 329,100,911,360,153,752,752,752,400, 658,201,822,720,306,150,150,150,800, 1,316,403,645,440,612,300,300,300,600, 2,632,807,290,880,122,600,600,600,200, 5,265,614,581,760,244,120,120,120,400, 10,531,229,163,520,488,240,240,240,800, 21,062,458,327,040,976,480,480,480,600, 42,124,916,654,080,195,960,960,960,200, 84,249,833,308,160,390,920,920,920,400, 168,499,666,616,320,780,184,184,184,800, 336,999,333,232,640,156,368,368,368,600, 673,998,666,464,128,312,312,312,200, 1,347,997,332,928,256,624,624,624,400, 2,695,994,665,856,512,124,124,124,800, 5,391,989,331,712,102,248,248,248,600, 10,783,978,663,424,204,496,496,496,200, 21,567,957,326,848,408,992,992,992,400, 43,135,914,653,696,816,198,198,198,800, 86,271,829,307,392,163,396,396,396,600, 172,543,658,614,784,326,792,792,792,200, 345,087,317,228,156,156,156,400, 690,174,634,456,312,312,312,800, 1,380,349,268,912,624,624,624,600, 2,760,698,537,824,124,124,124,200, 5,521,397,075,648,248,248,248,400, 11,042,794,151,296,496,496,496,800, 22,085,588,302,592,992,992,992,600, 44,171,176,605,184,198,198,198,200, 88,342,353,210,376,396,396,396,400, 176,684,706,420,752,792,792,792,800, 353,369,412,840,150,150,150,600, 706,738,825,680,300,300,300,200, 1,413,477,651,360,600,600,600,400, 2,826,955,302,720,120,120,120,800, 5,653,910,605,440,240,240,240,600, 11,307,821,210,880,480,480,480,200, 22,615,642,421,760,960,960,960,400, 45,231,284,843,520,192,192,192,800, 90,462,569,687,040,384,384,384,600, 180,925,139,374,080,768,768,768,200, 361,850,278,748,160,156,156,156,400, 723,700,557,496,320,312,312,312,800, 1,447,401,114,992,640,624,624,624,600, 2,894,802,229,984,128,128,128,200, 5,789,604,459,968,256,256,256,400, 11,579,208,919,936,512,512,512,800, 23,158,417,839,872,102,102,102,600, 46,316,835,679,744,204,204,204,200, 92,633,671,359,488,408,408,408,400, 185,267,342,718,976,816,816,816,800, 370,534,685,437,192,163,163,163,600, 741,069,370,874,384,326,326,326,200, 1,482,138,741,748,768,652,652,652,400, 2,964,277,483,496,152,152,152,800, 5,928,554,966,992,304,304,304,600, 11,857,109,933,984,608,608,608,200, 23,714,219,867,968,121,121,121,400, 47,428,439,735,936,242,242,242,800, 94,856,879,471,872,484,484,484,600, 189,713,758,943,744,968,968,968,200, 379,427,517,887,488,193,193,193,400, 758,855,035,774,976,386,386,386,800, 1,517,710,071,548,192,772,772,772,600, 3,035,420,143,096,384,154,154,154,200, 6,070,840,286,192,768,768,768,400, 12,141,680,572,384,152,152,152,800, 24,283,361,144,768,304,304,304,600, 48,566,722,289,536,608,608,608,200, 97,133,444,578,107,121,121,121,400, 194,266,889,156,214,232,232,232,800, 388,533,778,312,428,464,464,464,600, 777,067,556,624,856,928,928,928,200, 1,554,135,113,248,171,184,184,184,400, 3,108,270,226,496,342,368,368,368,800, 6,216,540,452,992,684,736,736,736,600, 12,433,080,905,984,136,136,136,200, 24,866,161,811,968,272,272,272,400, 49,732,323,623,936,544,544,544,800, 99,464,647,247,872,108,108,108,600, 198,929,294,495,744,216,216,216,200, 397,858,588,991,488,432,432,432,400, 795,717,177,983,976,864,864,864,800, 1,591,434,355,967,952,172,172,172,600, 3,182,868,711,934,344,344,344,200, 6,365,737,423,868,688,688,688,400, 12,731,474,847,736,136,136,136,800, 25,462,949,695,472,272,272,272,600, 50,925,899,390,944,544,544,544,200, 101,851,798,781,888,108,108,108,400, 203,703,597,563,776,216,216,216,800, 407,407,195,127,152,152,152,600, 814,814,390,254,304,304,304,200, 1,629,628,780,508,608,608,608,400, 3,259,257,561,016,121,121,121,800, 6,518,515,122,032,242,242,242,600, 13,037,030,244,064,484,484,484,200, 26,074,060,488,128,128,128,400, 52,148,120,976,256,256,256,800, 104,296,241,952,512,512,512,600, 208,592,483,904,102,102,102,200, 417,184,967,808,204,204,204,400, 834,369,934,616,408,408,408,800, 1,668,738,869,232,816,816,816,600, 3,337,477,738,464,163,163,163,200, 6,674,955,476,928,326,326,326,400, 13,349,910,953,856,652,652,652,800, 26,699,821,907,712,130,130,130,600, 53,399,643,814,424,260,260,260,200, 106,799,287,628,848,520,520,520,400, 213,598,575,257,696,104,104,104,800, 427,197,150,515,392,208,208,208,600, 854,394,301,030,784,4



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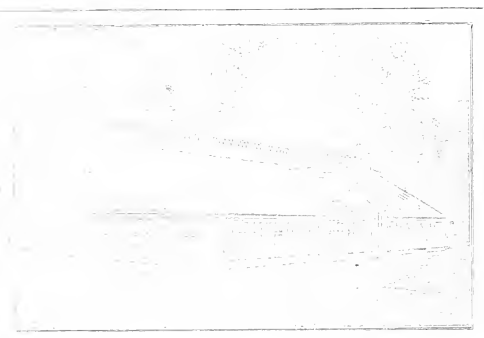
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[illegible]

(iii) \mathcal{C}_1 and \mathcal{C}_2 correspond to this case. The \mathcal{C}_1 and \mathcal{C}_2 correspond to what has been called \mathcal{C}_1 and \mathcal{C}_2 in [10]. This has been accomplished

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 26

the word *soil* is used throughout; a brief definition of the word is given, and the soil is described as an expanse of earth composed of various materials.

and manures is continued in the book *Soil and Fertilizing* and *Feeding Stuff*.

On the whole, the results are in reference for the

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Fig. 2

REAS

Medals

1945

THE SOUTHERN PEASANT SPECIALIST
CARNFORTH

1900

1901

1902

1903

1904

1905

1906

1907

1908

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1911

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